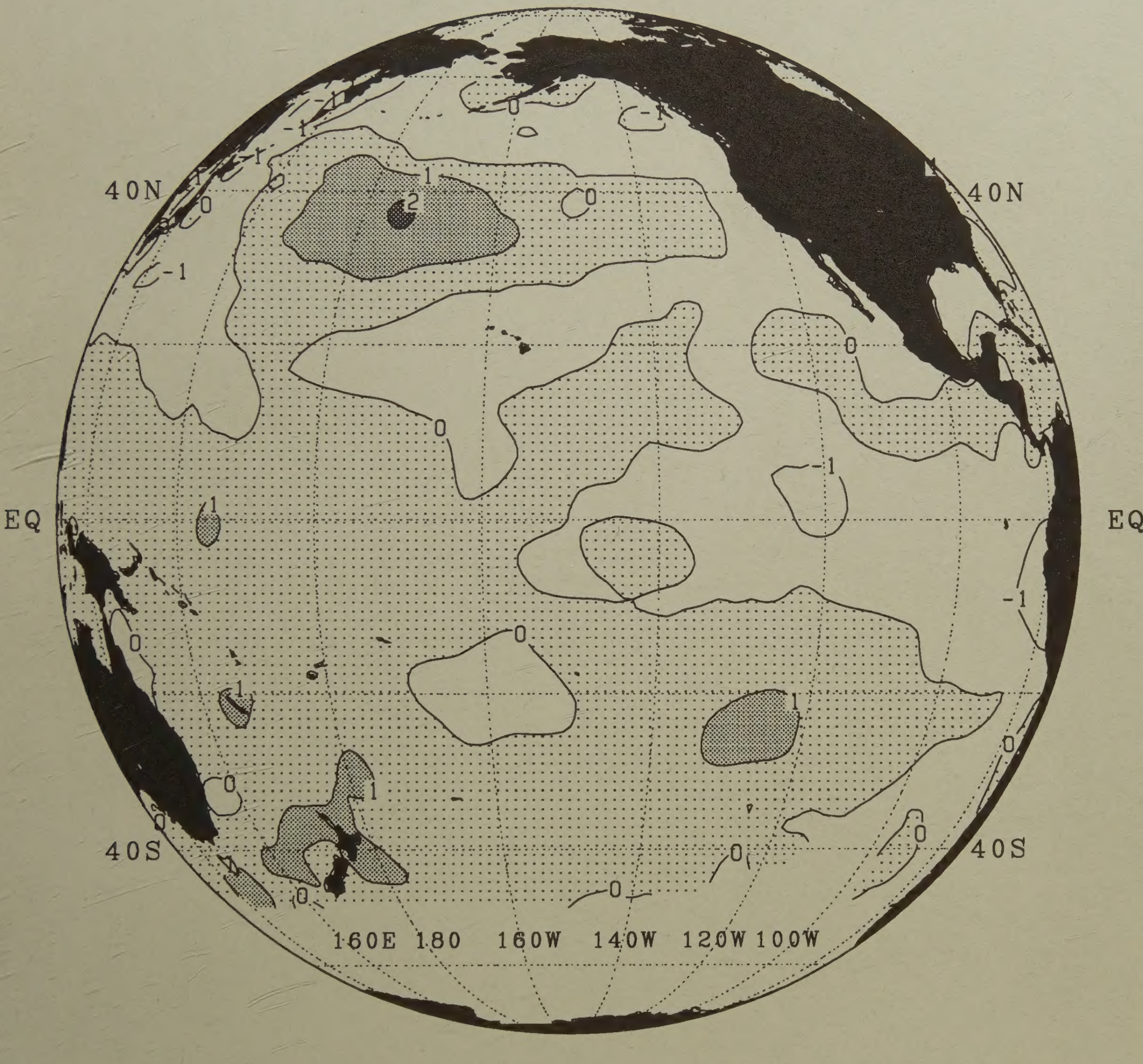
気 象 庁 海 洋 月 報

Monthly Ocean Report
October 2001 (No. 106)



Climate and Marine Department

Japan Meteorological Agency

気 象 庁 気 候・海 洋 気 象 部

平 成 1 3 年 1 0 月

気象庁海洋月報は、気象庁 気候・海洋気象部 海洋気象情報室で作成しています。

本月報に関する問い合わせは、

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Monthly Ocean Report is prepared by the Office of Marine Prediction, Climate and Marine Department, Japan Meteorological Agency.

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表紙は、2001 年 10 月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for October 2001 in the Pacific Ocean.
Areas of positive anomalies are shaded.

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海況の特徴（２００１年１０月）

日本近海の海況

海面水温は、日本海の本州沿岸域、オホーツク海及び千島列島から三陸沖にかけての太平洋では平年より0.5℃以上低く、50°N以北のオホーツク海、千島列島近海から北海道の南、及び小笠原諸島近海では−1℃を超える負偏差となっていた。紀伊水道南方及び常磐沖では平年より0.5℃以上高かった（第４図）。

黒潮は、東海沖で離岸、東進し、33°N、142°E付近に達していた。その後、八丈島の東で北北西に向きを変え、38°Nまで北上、常磐沖を東に流れていた（第９図）。

太平洋の海況

太平洋赤道域の海面水温は、140°E付近と155°Eから175°Wにかけて＋0.5℃を超える正偏差となっていた。一方、135°Wから95°Wにかけて平年より0.5℃以上低く、120°W付近とペルー沖では−1℃を超える負偏差が見られた。

北太平洋の海面水温は、30°Nから45°Nの170°Eから160°Wにかけて平年より1℃以上高かった。一方、日本の南東から20°N、160°Eにかけてと、北東太平洋の50°Nに沿った海域では−0.5℃を超える負偏差となっていた（第１７図）。

Highlights October 2001

Seas adjacent to Japan

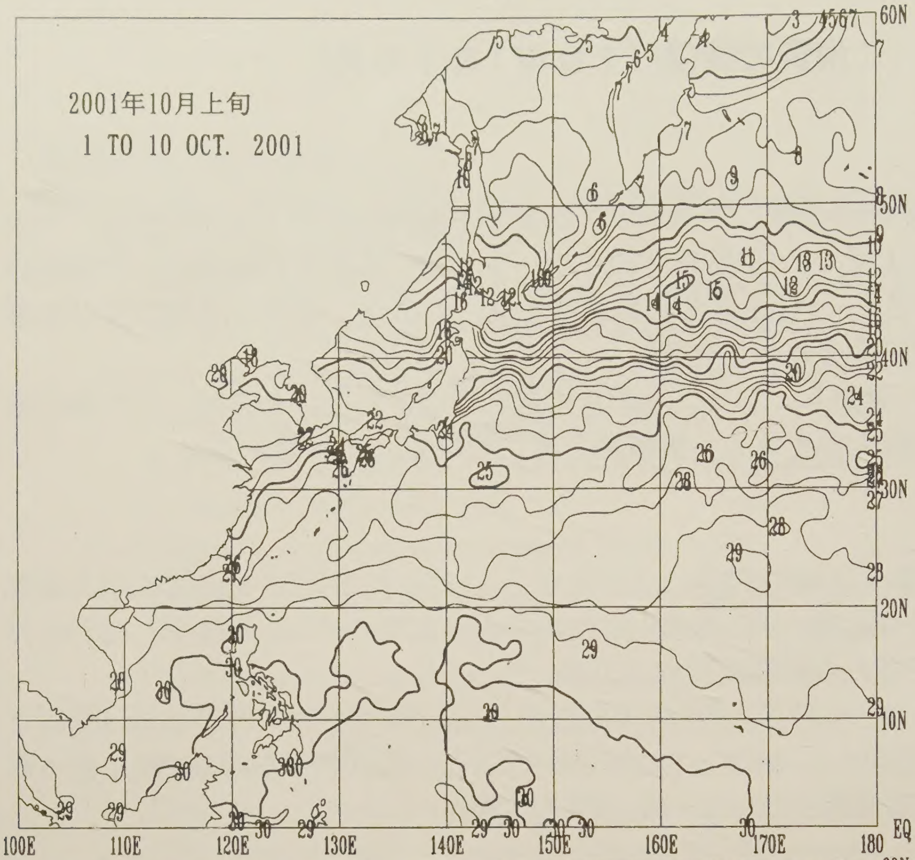
SSTs were more than 0.5℃ below normal off the coast of Honshu in the Japan Sea, in the Sea of Okhotsk and in seas around the Kuril Islands to off Sanriku. Negative SST anomalies exceeded −1℃ north of 50°N in the Sea of Okhotsk, around the Kuril Islands, south of Hokkaido and around the Ogasawara Islands. SSTs were more than 0.5℃ above normal south of the Kii Channel and off Joban (Fig. 4).

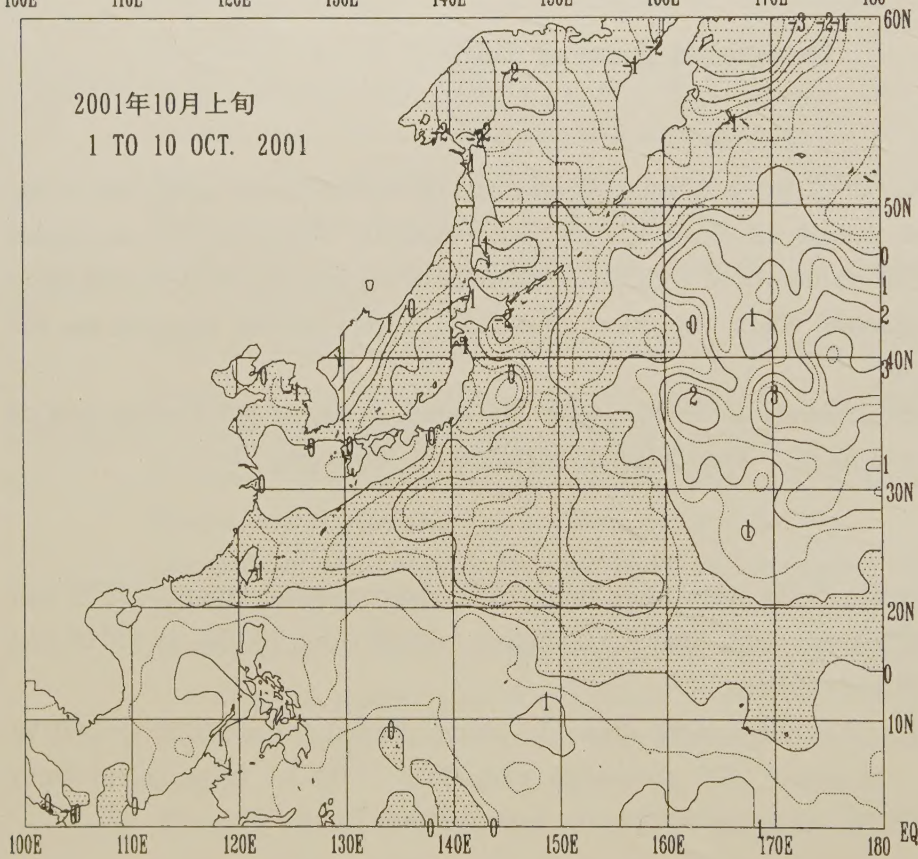
The Kuroshio flowed eastward to 33°N, 142°E off Tokai. It turned NNW-ward east of Hachijo Island and flowed up to 38°N. Then it turned eastward off Joban (Fig. 9).

Pacific Ocean

In the equatorial Pacific, SSTs were more than 0.5℃ above normal around 140°E and from 155°E to 175°W. SSTs were more than 0.5℃ below normal from 135°W to 95°W and more than 1℃ around 120°W and off Peru.

In the North Pacific, SSTs were more than 1℃ above normal from 170°E to 160°W between 30°N and 45°N. Negative SST anomalies exceeding −0.5℃ were found from southeast of Japan to 20°N, 160°E and along 50°N in the eastern North Pacific (Fig. 17).





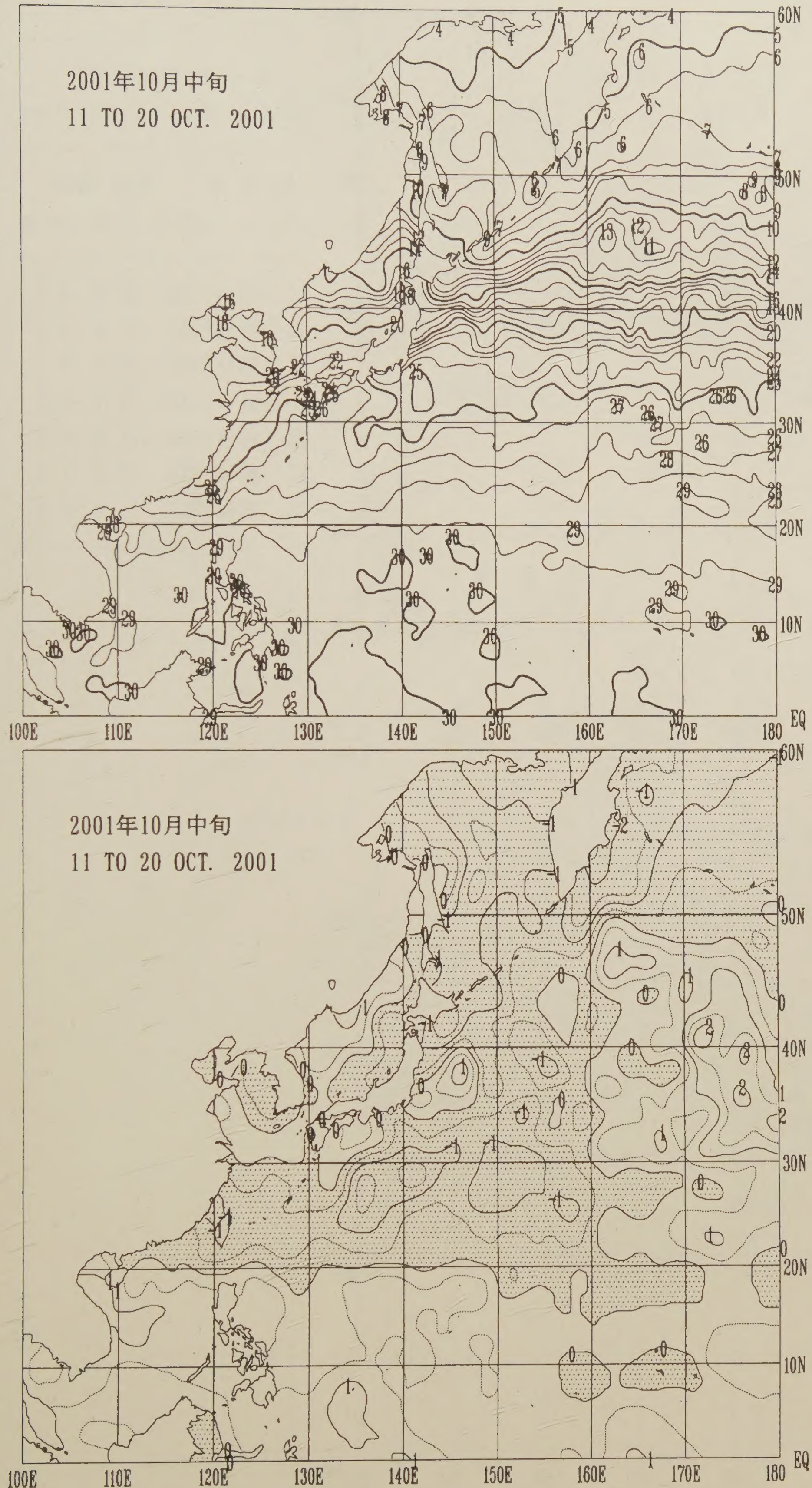
旬平均沿岸水温 (℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣 (47918)	27.2	-0.2
御前崎 (47655)	23.0	0.5
八丈島 (47678)	23.1	-1.9
小名浜 (47598)	19.1	-1.4
宮　古 (47585)	18.4	-0.4
江　差 (47428)	19.1	0.1
浜　田 (47755)	22.3	-0.6

第1図 北西太平洋旬平均海面水温図 (上) 及び偏差図 (下) (2001年10月上旬)

Fig. 1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in OCT 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies

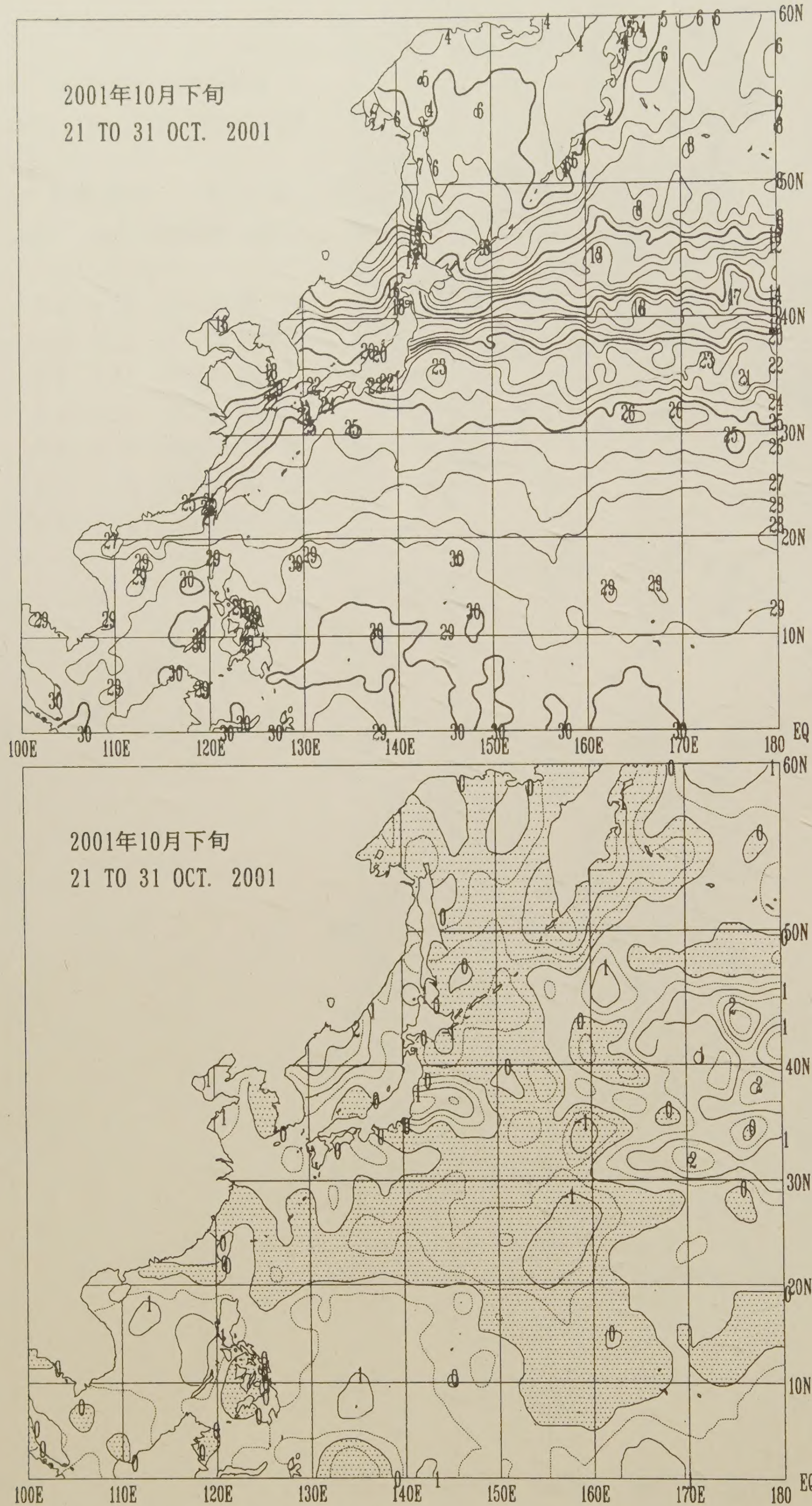


旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	25.8	-0.9
御前崎(47655)	21.8	0.5
八丈島(47678)	24.1	0.0
小名浜(47598)	18.4	-1.2
宮　古(47585)	17.4	-0.7
江　差(47428)	17.6	0.3
浜　田(47755)	21.4	-0.5

第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2001年10月中旬)

Fig. 2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in OCT 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

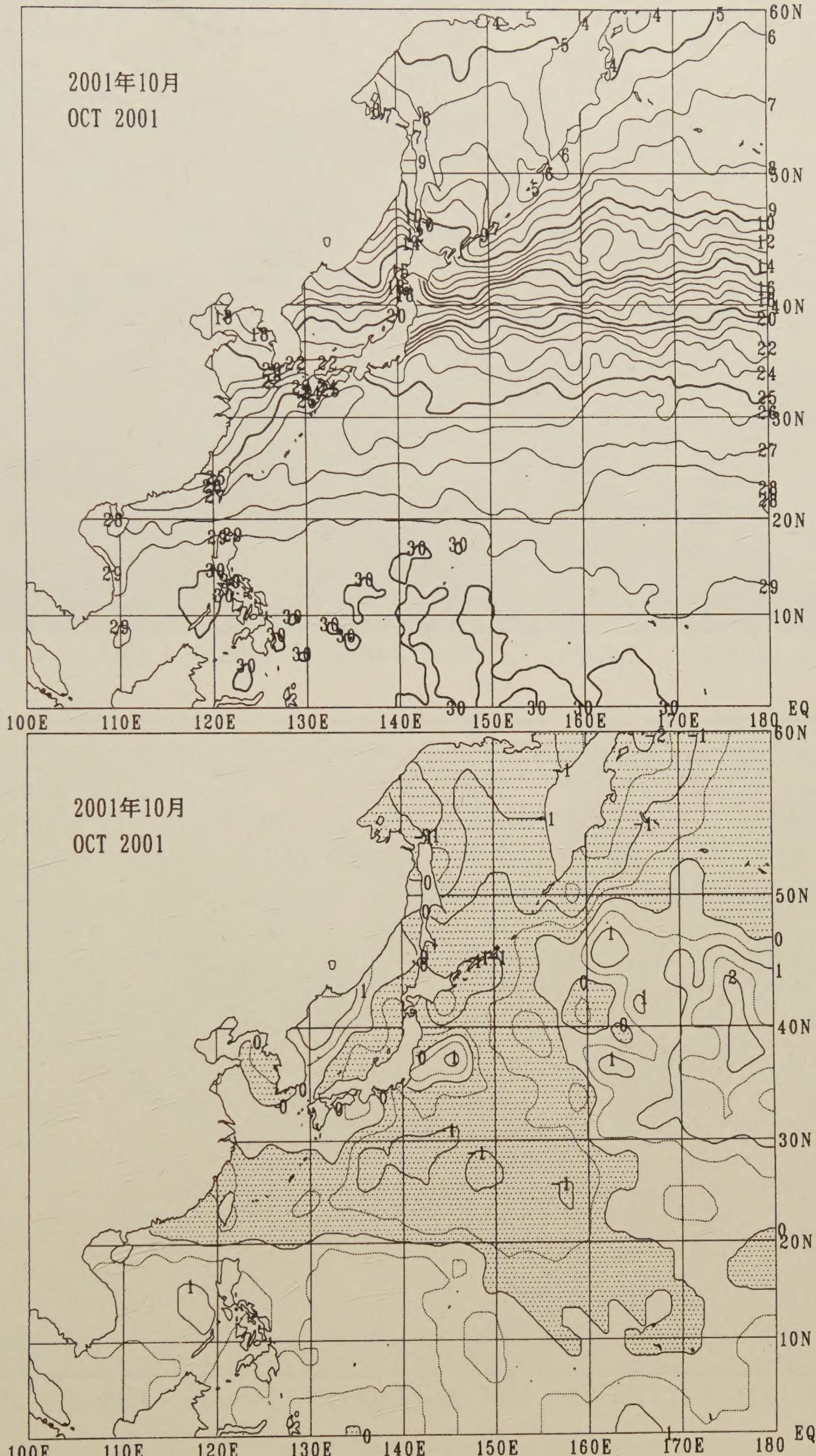


旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	25.9	-0.1
御前崎(47655)	20.5	0.5
八丈島(47678)	23.8	0.5
小名浜(47598)	18.1	-0.4
宮　古(47585)	16.8	-0.3
江　差(47428)	16.8	1.3
浜　田(47755)	21.0	0.4

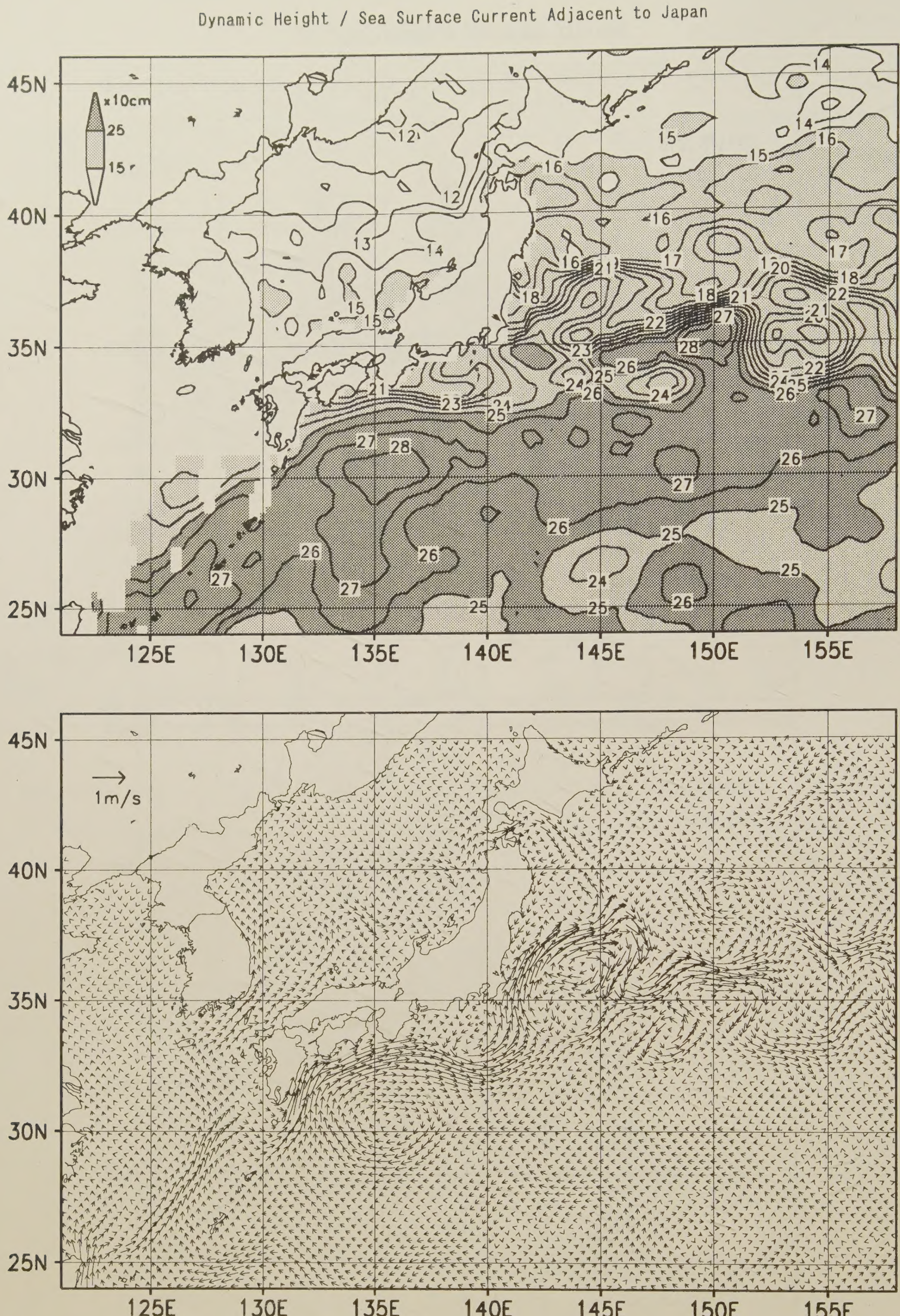
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Fig. 3 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 3rd ten-day period in OCT 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



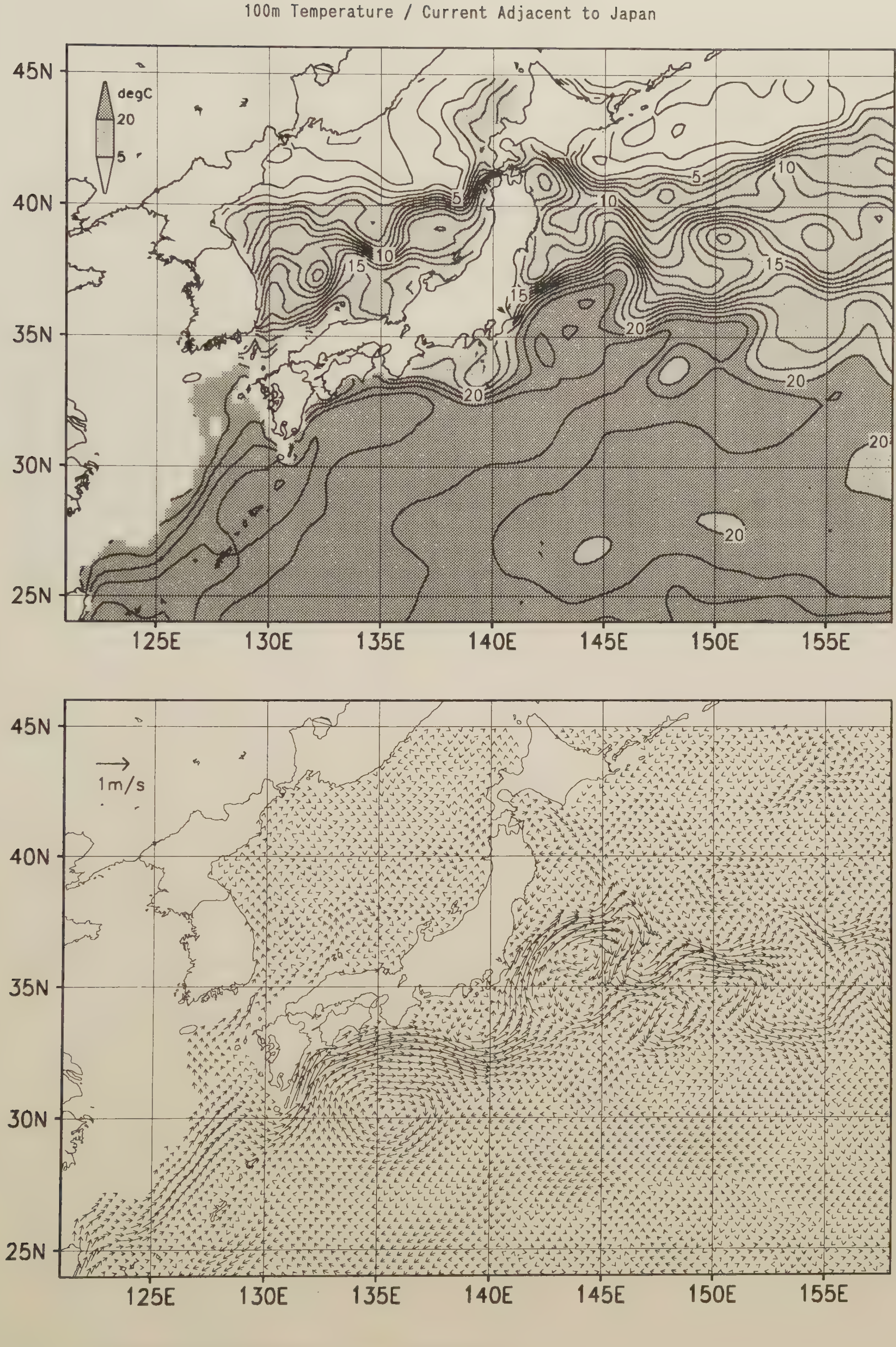
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Fig. 4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for OCT 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



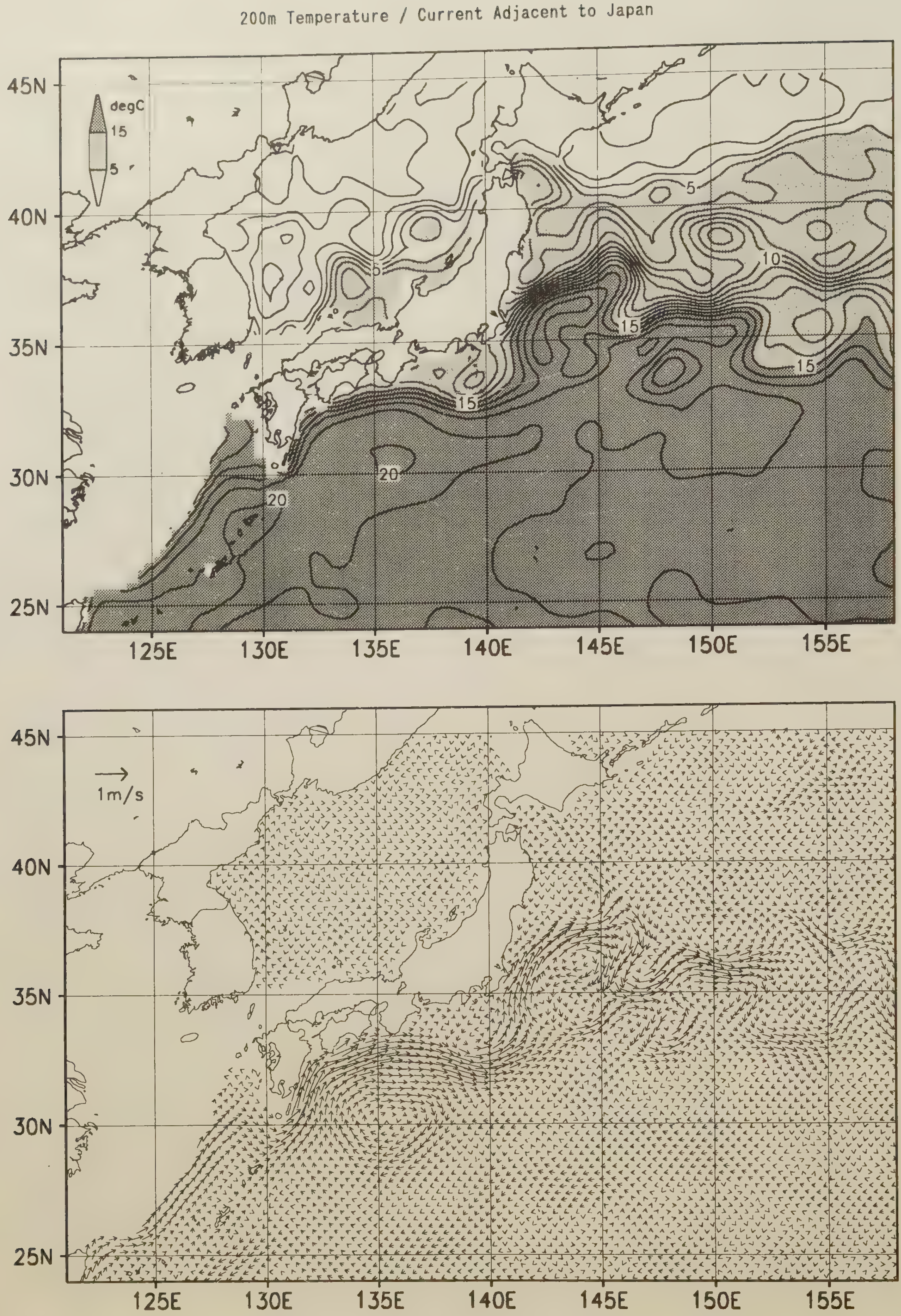
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（海洋総合解析システムによる）

Fig. 5　Monthly mean sea surface height (top) and current (bottom) in seas adjacent to Japan for October 2001. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



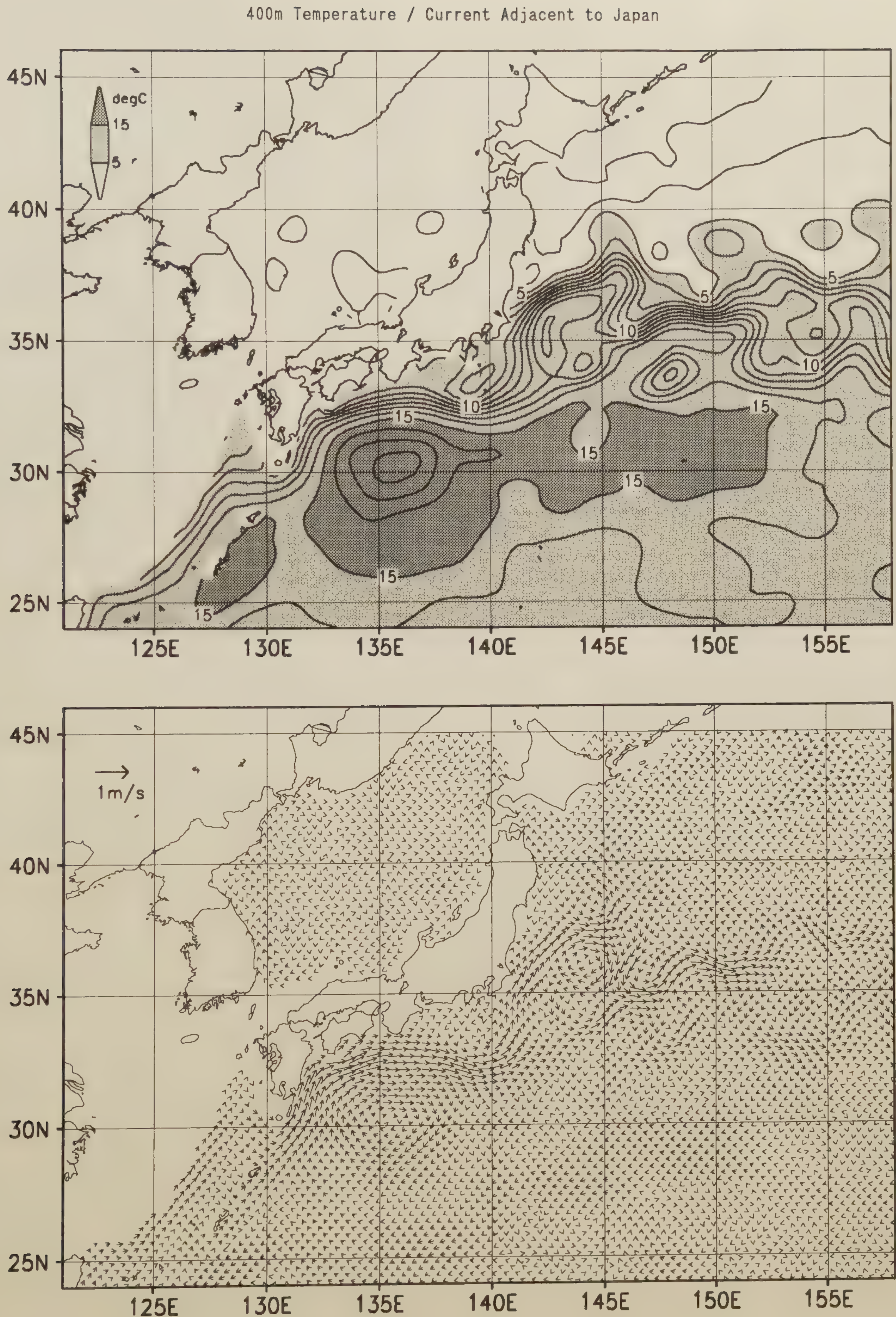
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（海洋総合解析システムによる）

Fig. 6　Monthly mean subsurface (100 m) temperature (top) and current (bottom) in seas adjacent to Japan for October 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第７図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 200 m）（2001 年 10 月）
（海洋総合解析システムによる）

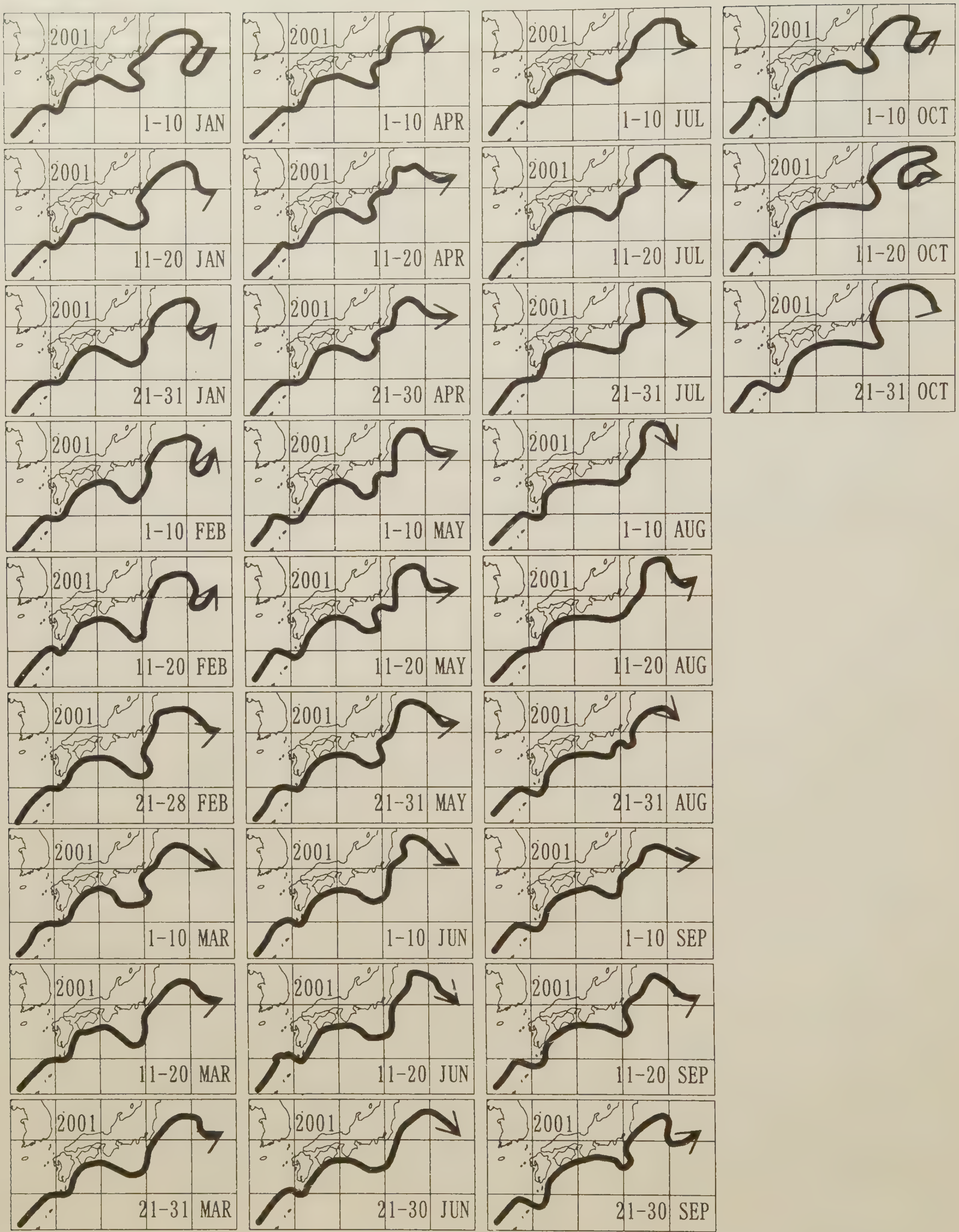
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第８図　日本近海月平均表層水温図（上）と表層海流図（下）　（深さ 400 m）（2001 年 10 月）
（海洋総合解析システムによる）

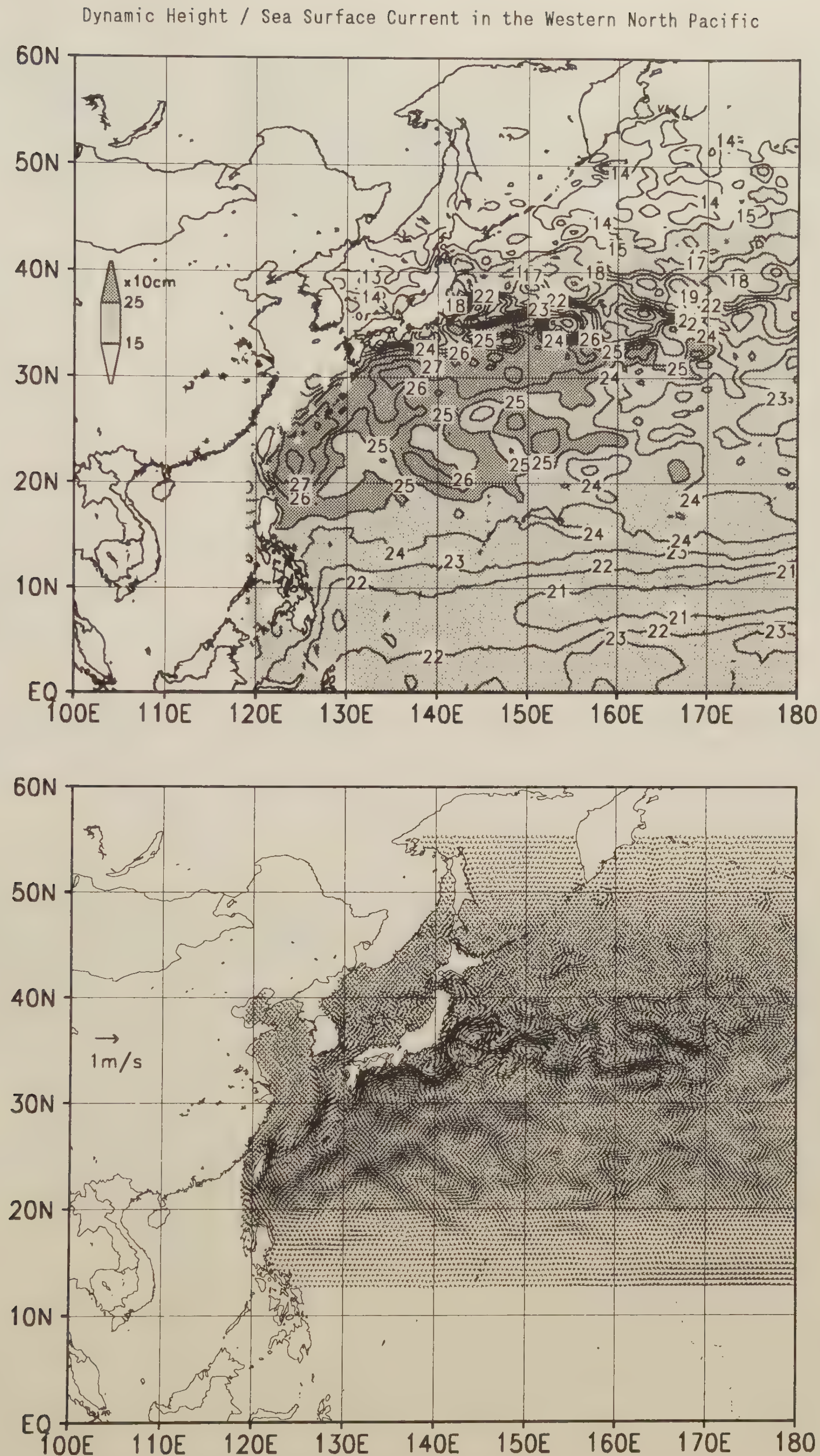
Fig. 8　Monthly mean subsurface (400 m) temperature (top) and current (bottom) in seas adjacent to Japan for October 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)

Location of the Kuroshio axis



第9図 旬別黒潮流軸図

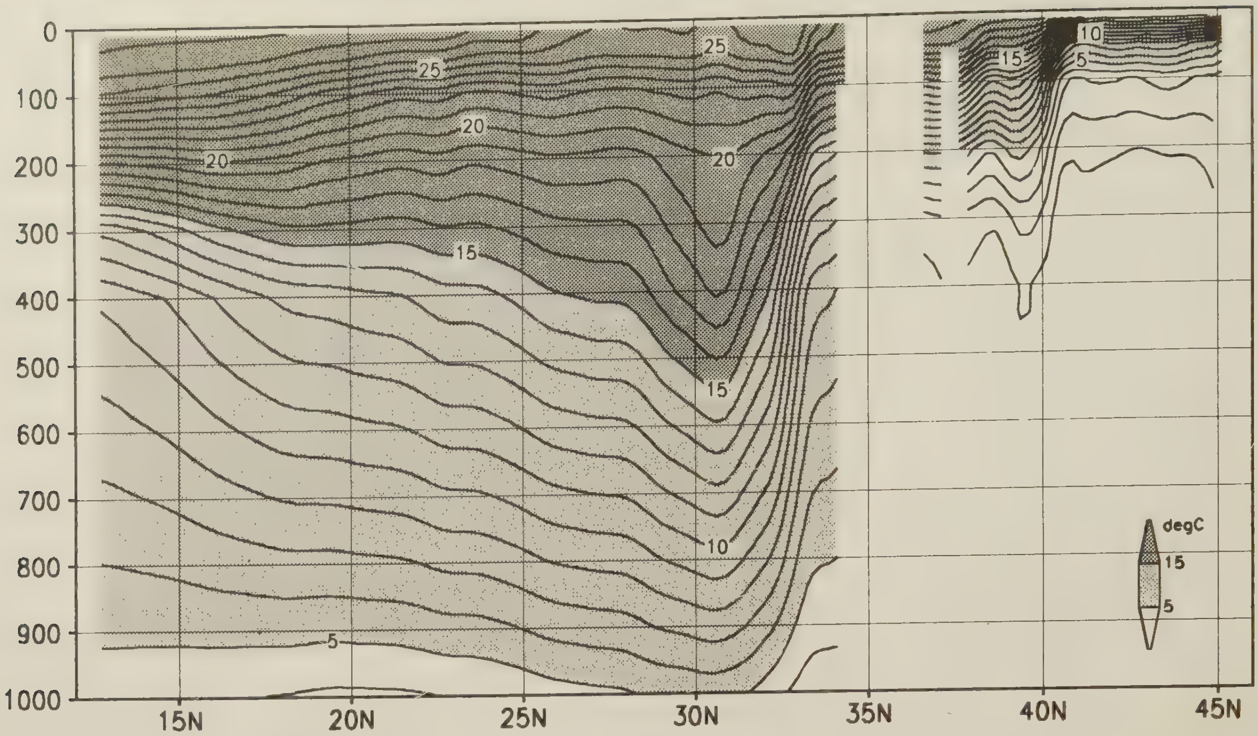
Fig. 9 Location of the Kuroshio axis



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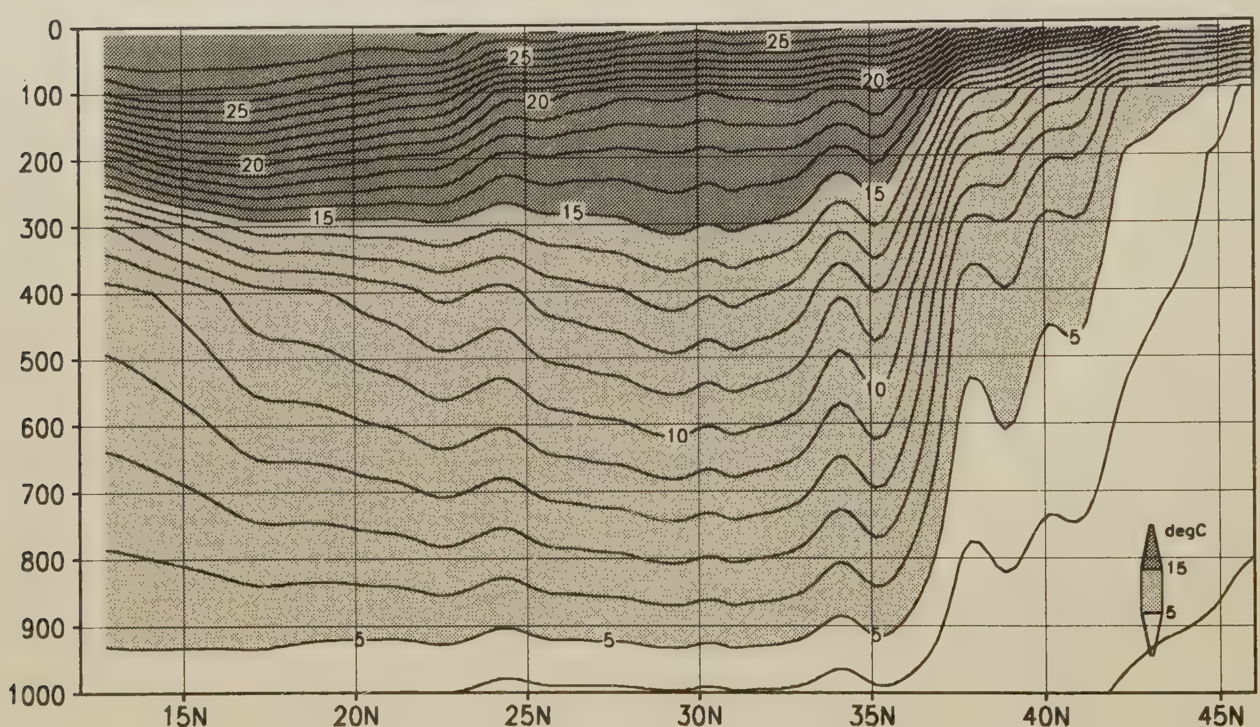
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Depth-Latitude Sections of Temperature along 137E / 165E



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（海洋総合解析システムによる）

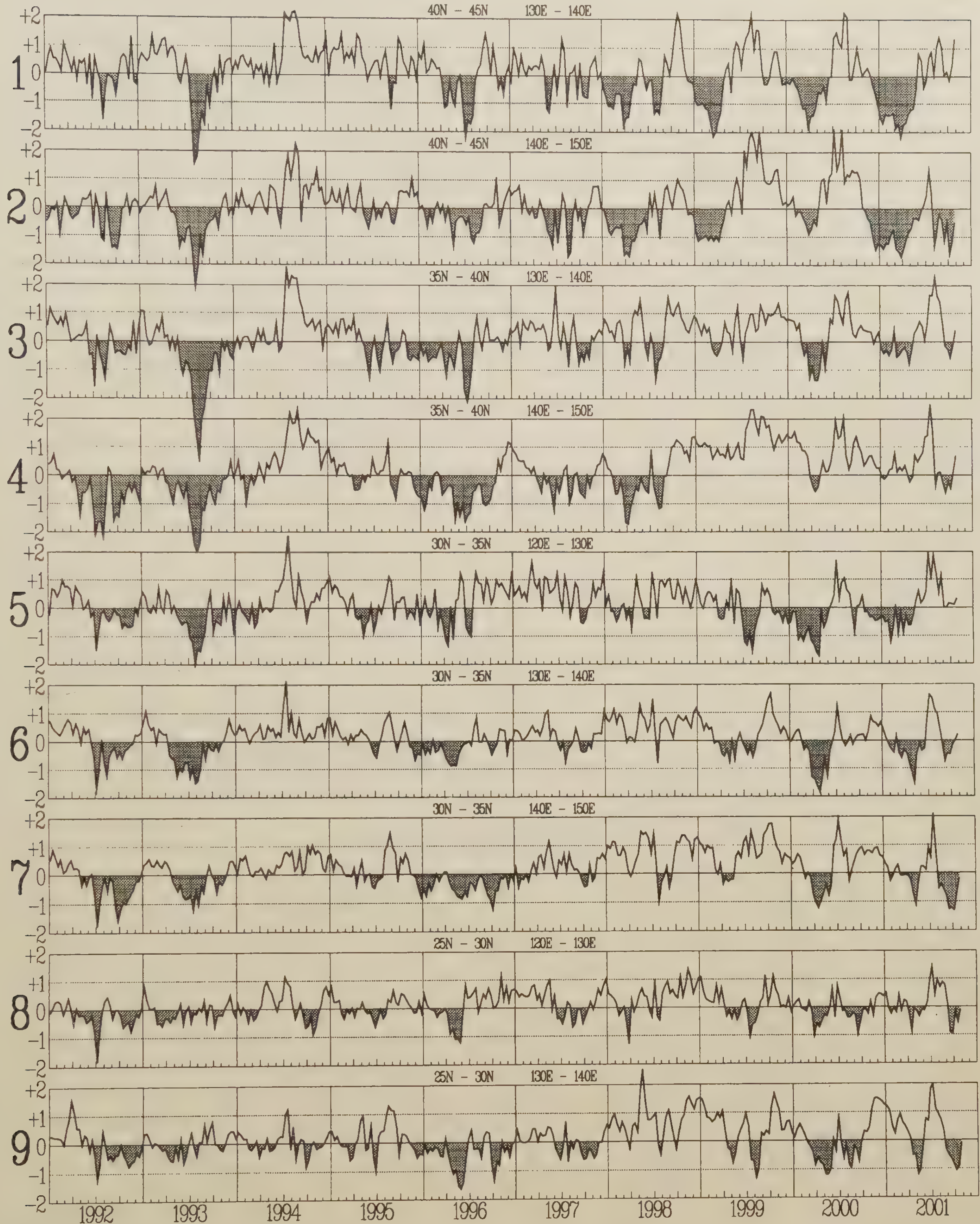
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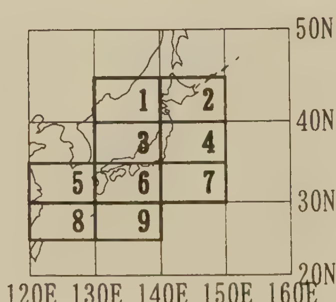


第 12 図　東経 165° 線に沿う月平均表層水温の鉛直断面図 （2001 年 10 月）
（海洋総合解析システムによる）

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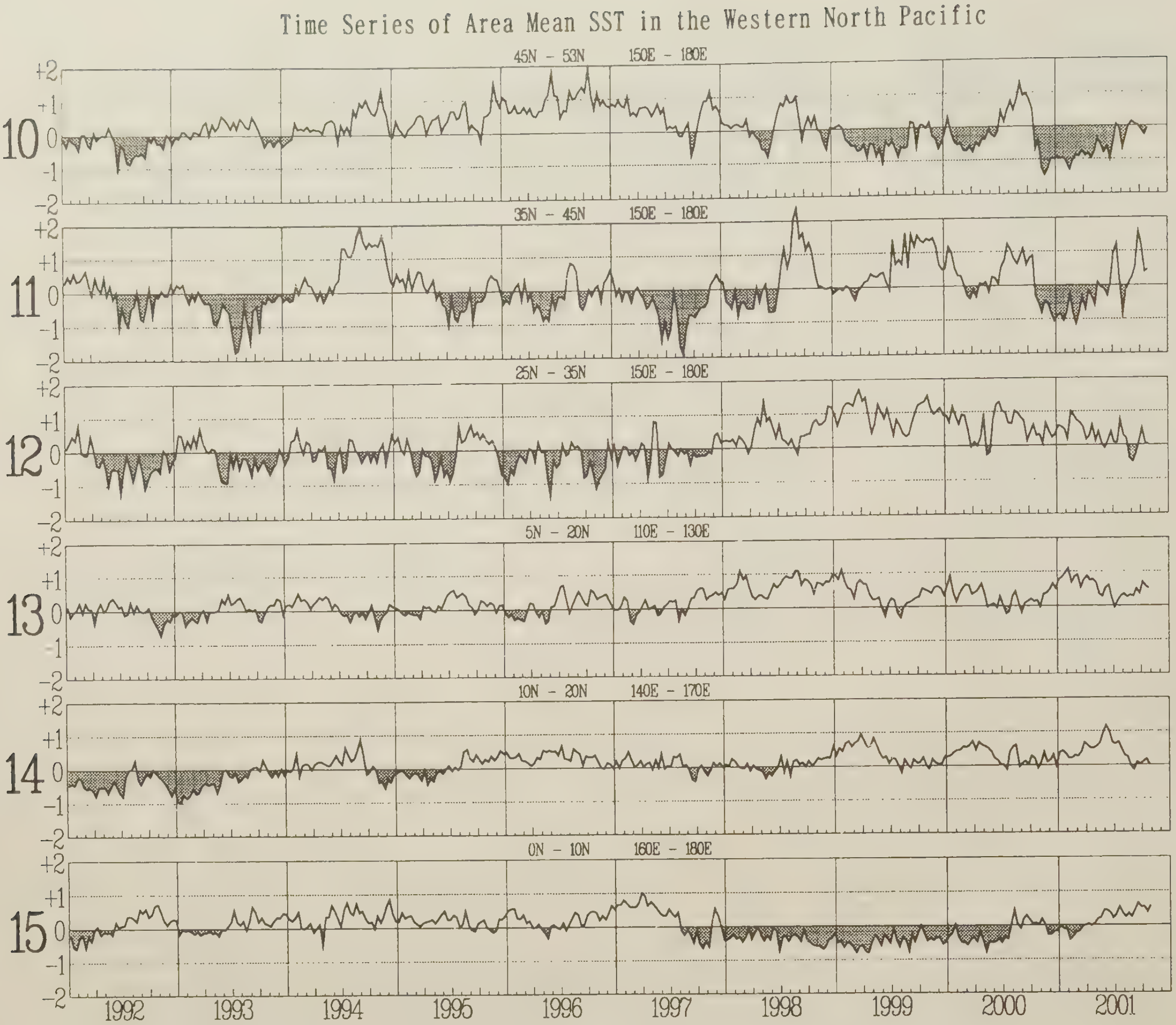
Time Series of Area Mean SST in the Western North Pacific





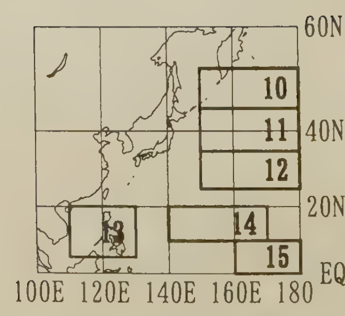
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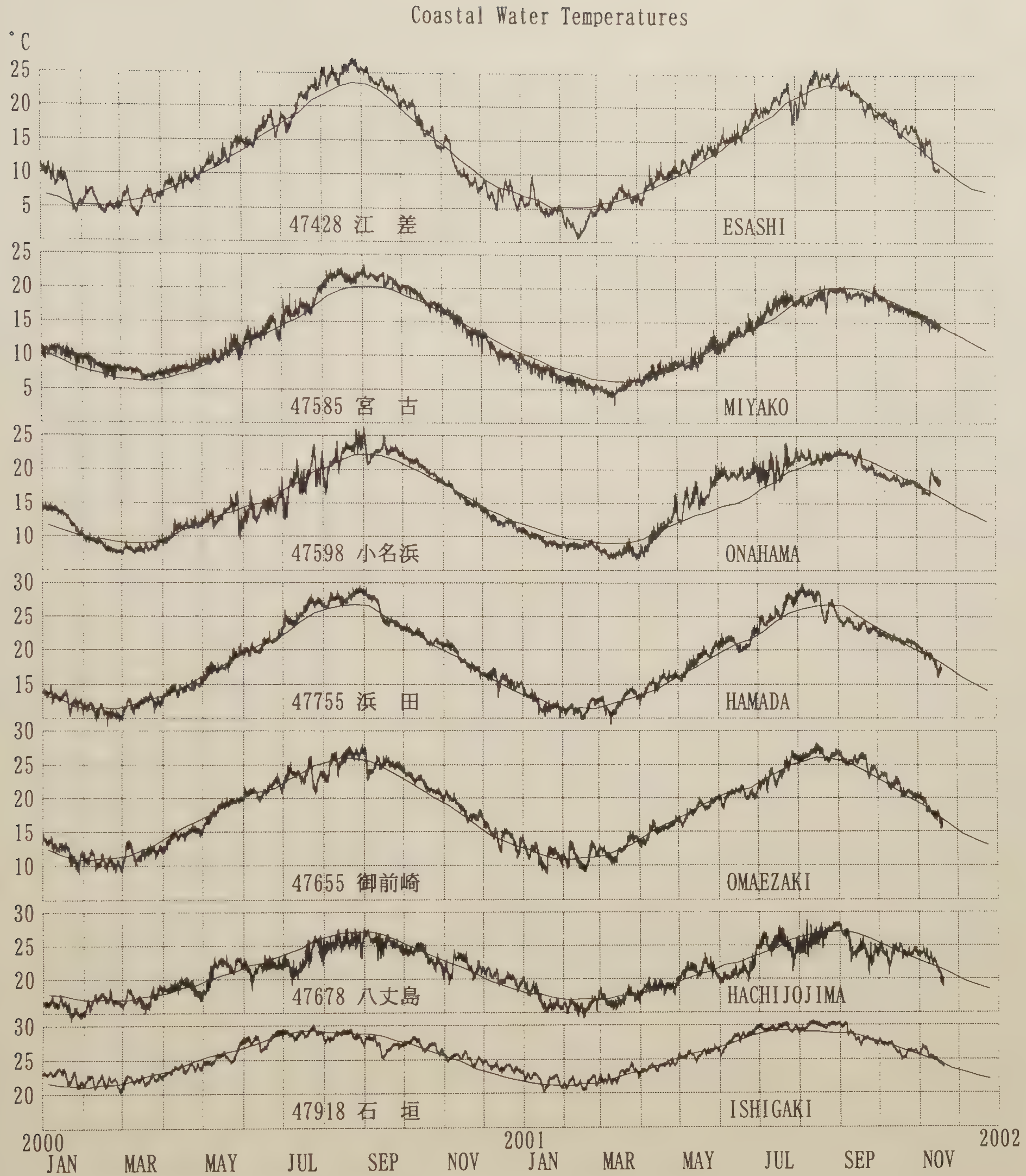
Fig. 13 Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

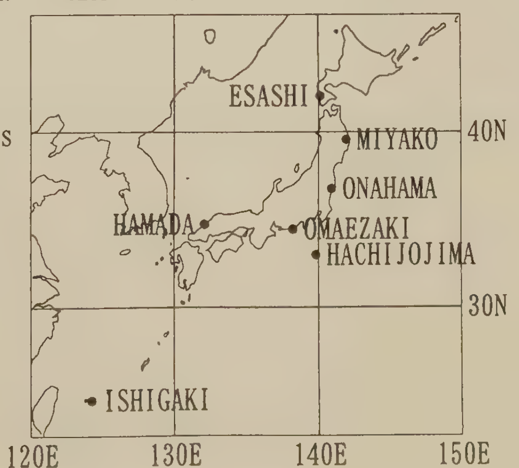


第13図　海域別旬平均海面水温平年偏差時系列図（つづき）

Fig. 13 (continue) Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).



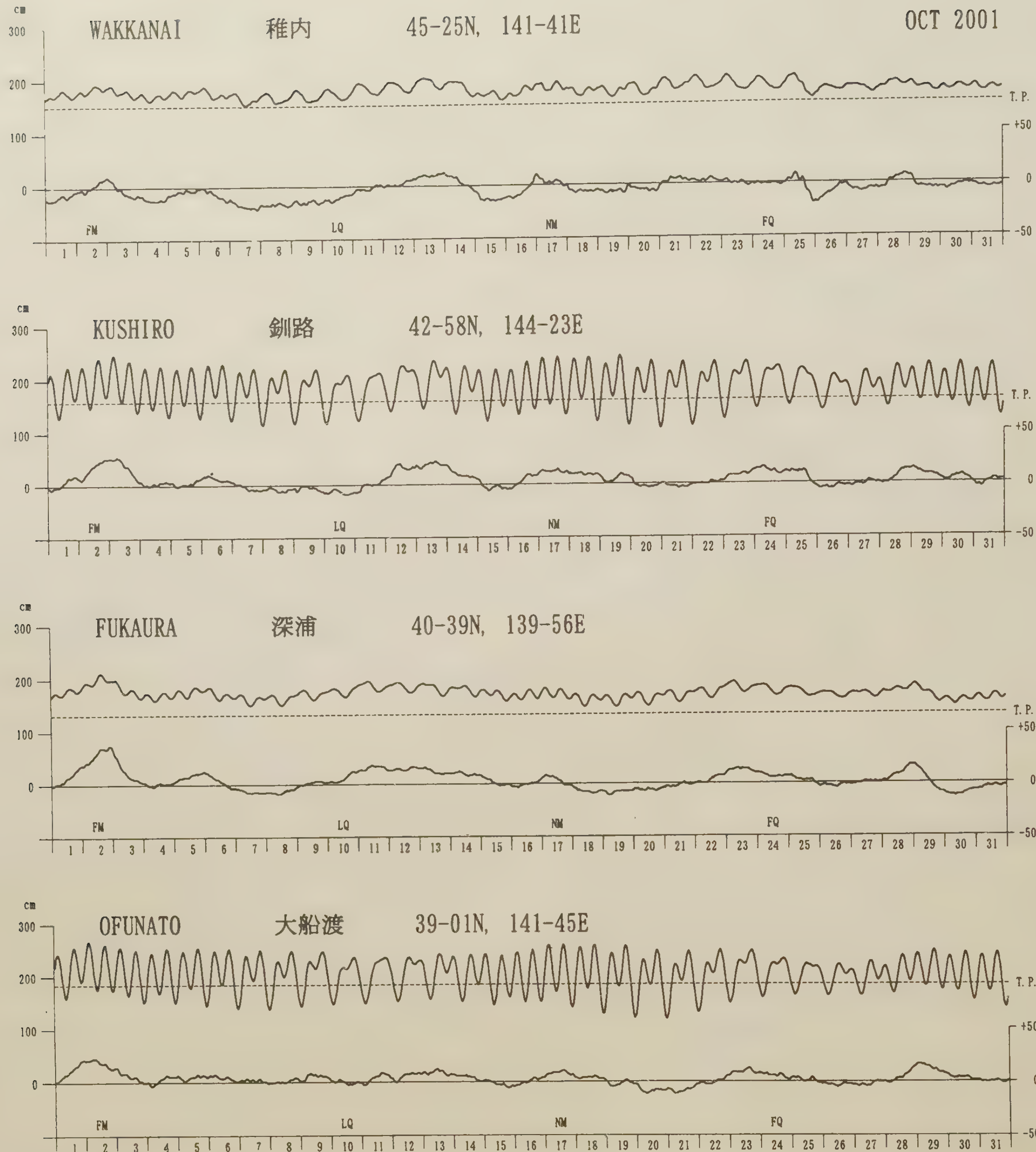




第14図 沿岸水温時系列図

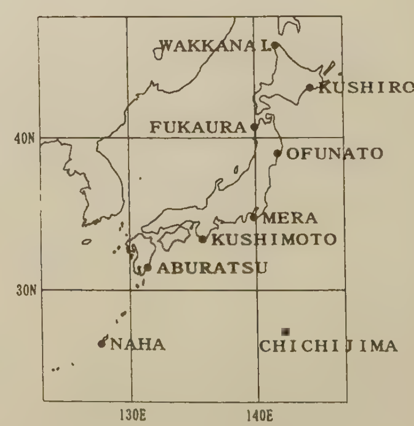
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Thin lines show ten-day mean climatology.

Time Series of Sea Level

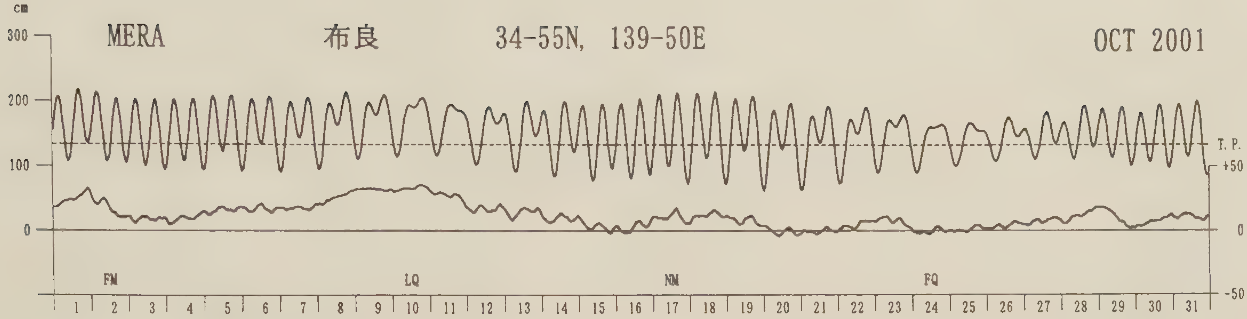


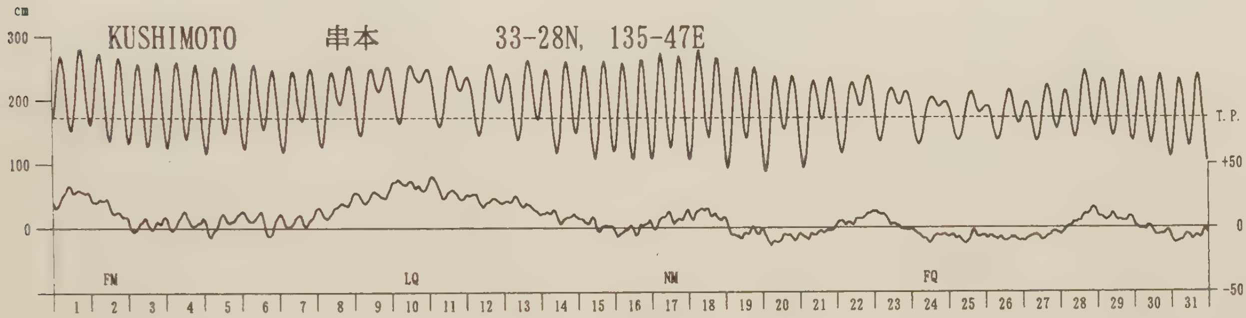
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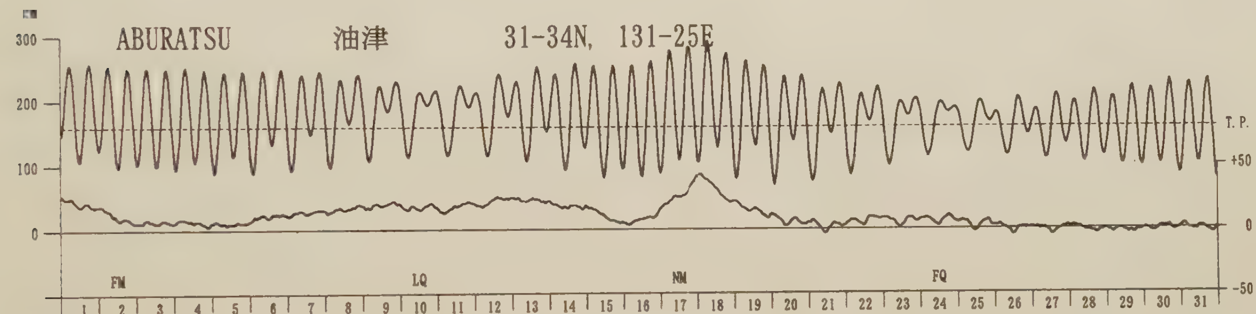
Fig. 15 Time series of hourly sea level observation (upper line) and its anomalies (lower line) at 9 stations of the JMA in the right panel.
Short term variations are removed from raw data.

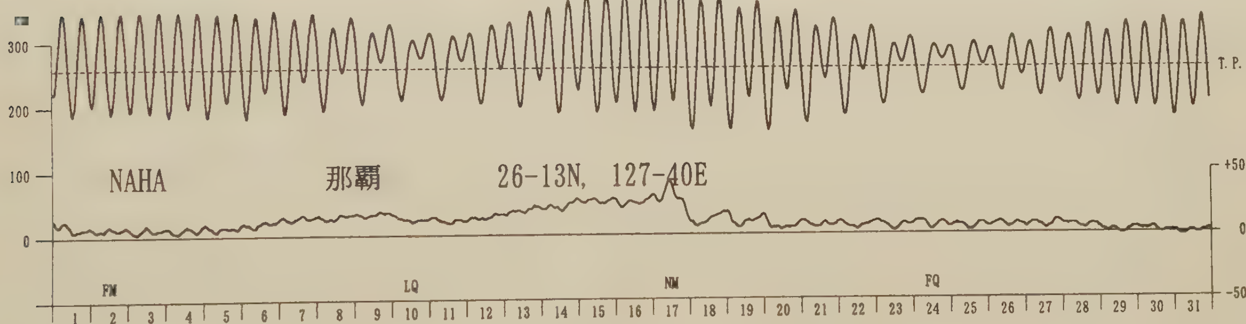


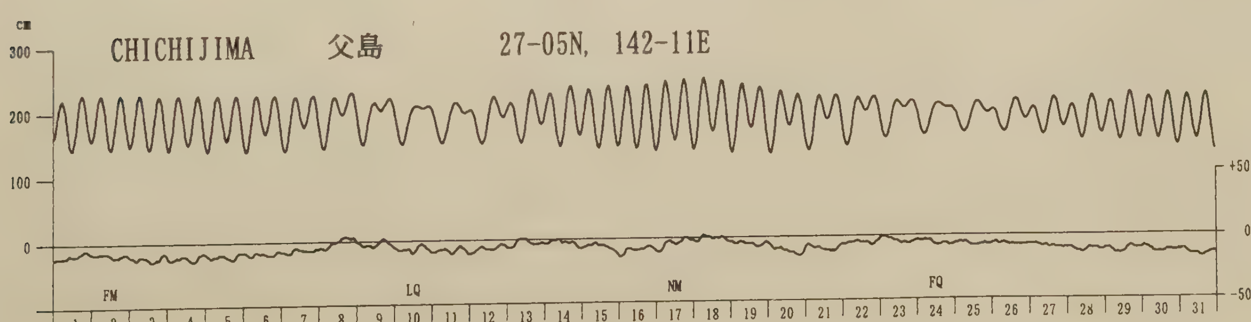
NM: new moon, FQ: first quarter
FM: full moon, LQ: last quarter
T. P. : Mean sea level of Tokyo Bay (Tokyo Peil)





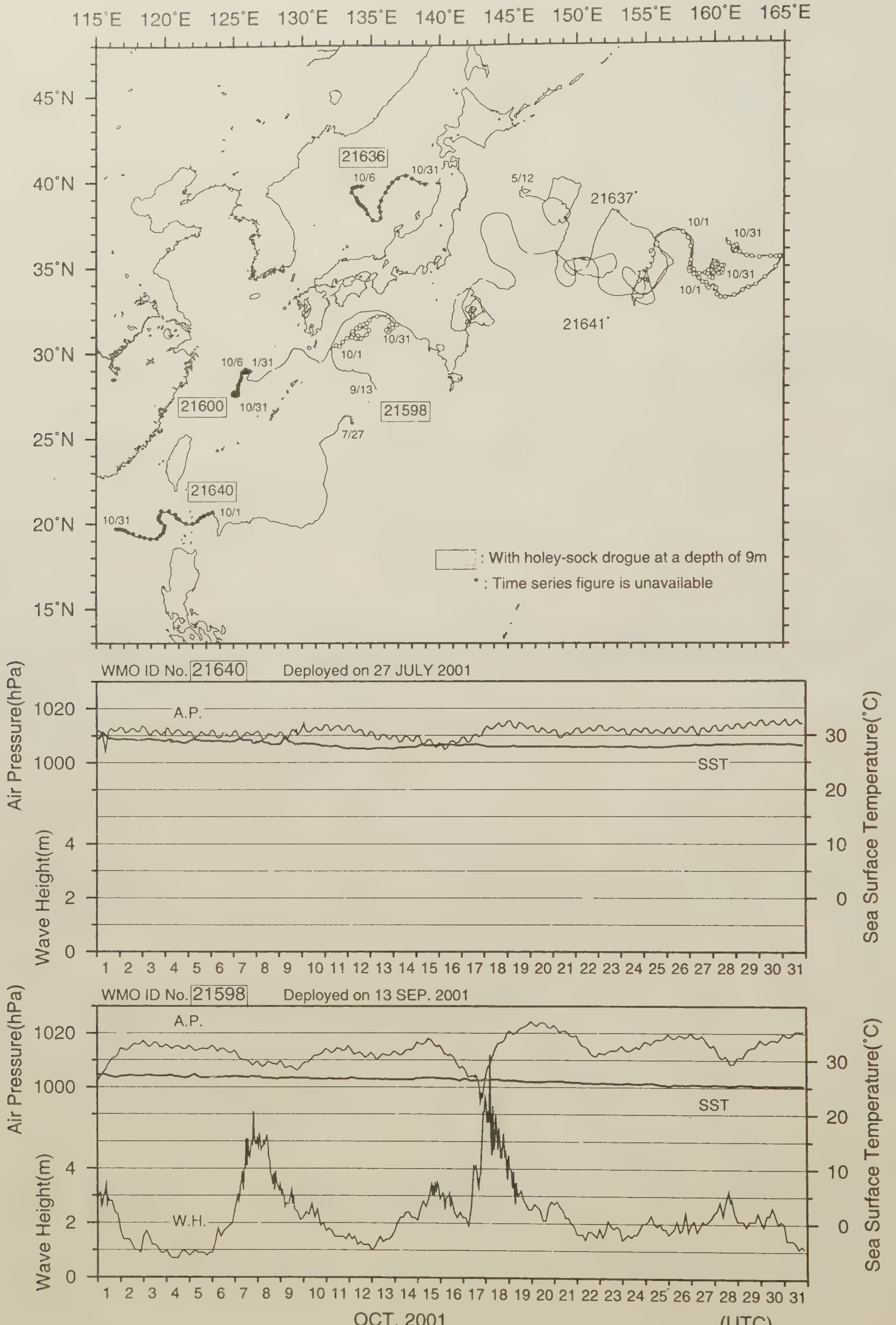






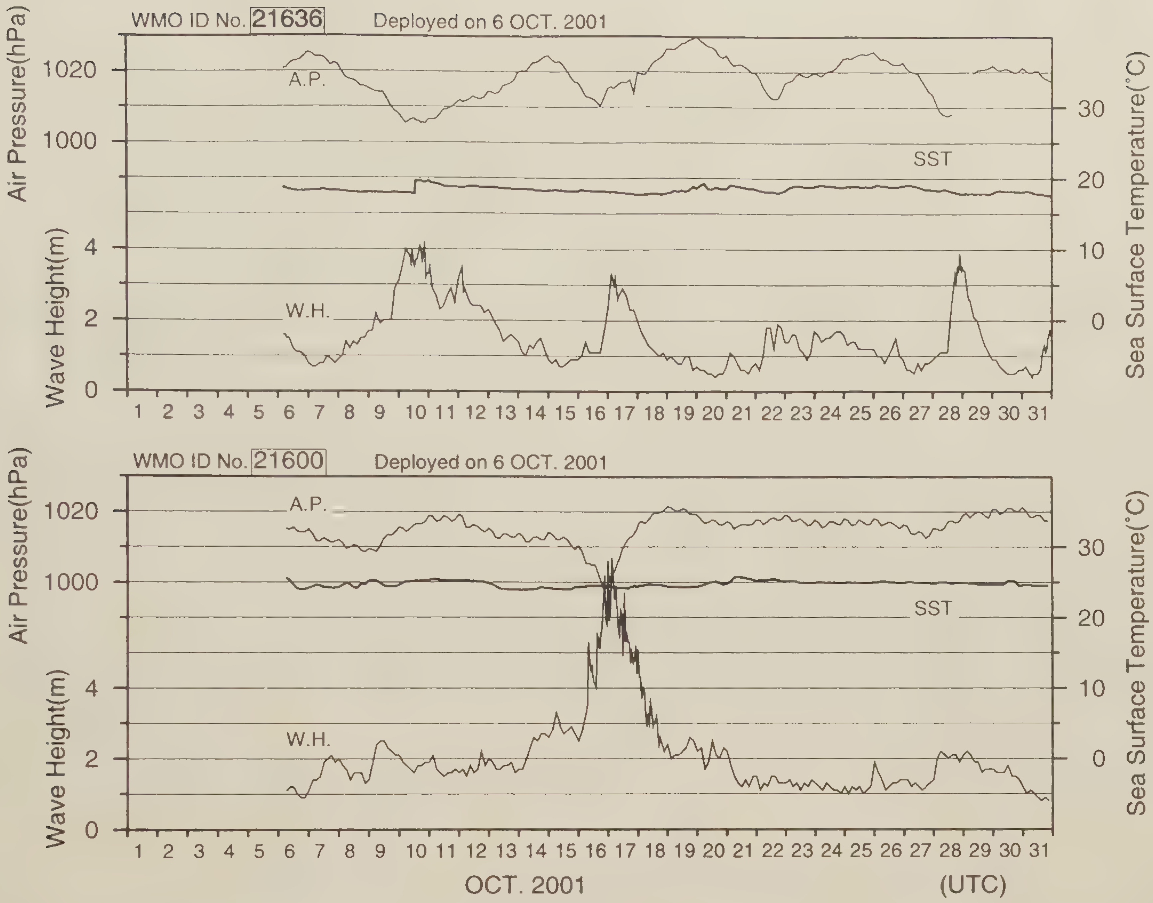
第15図 つづき

Fig. 15 continue



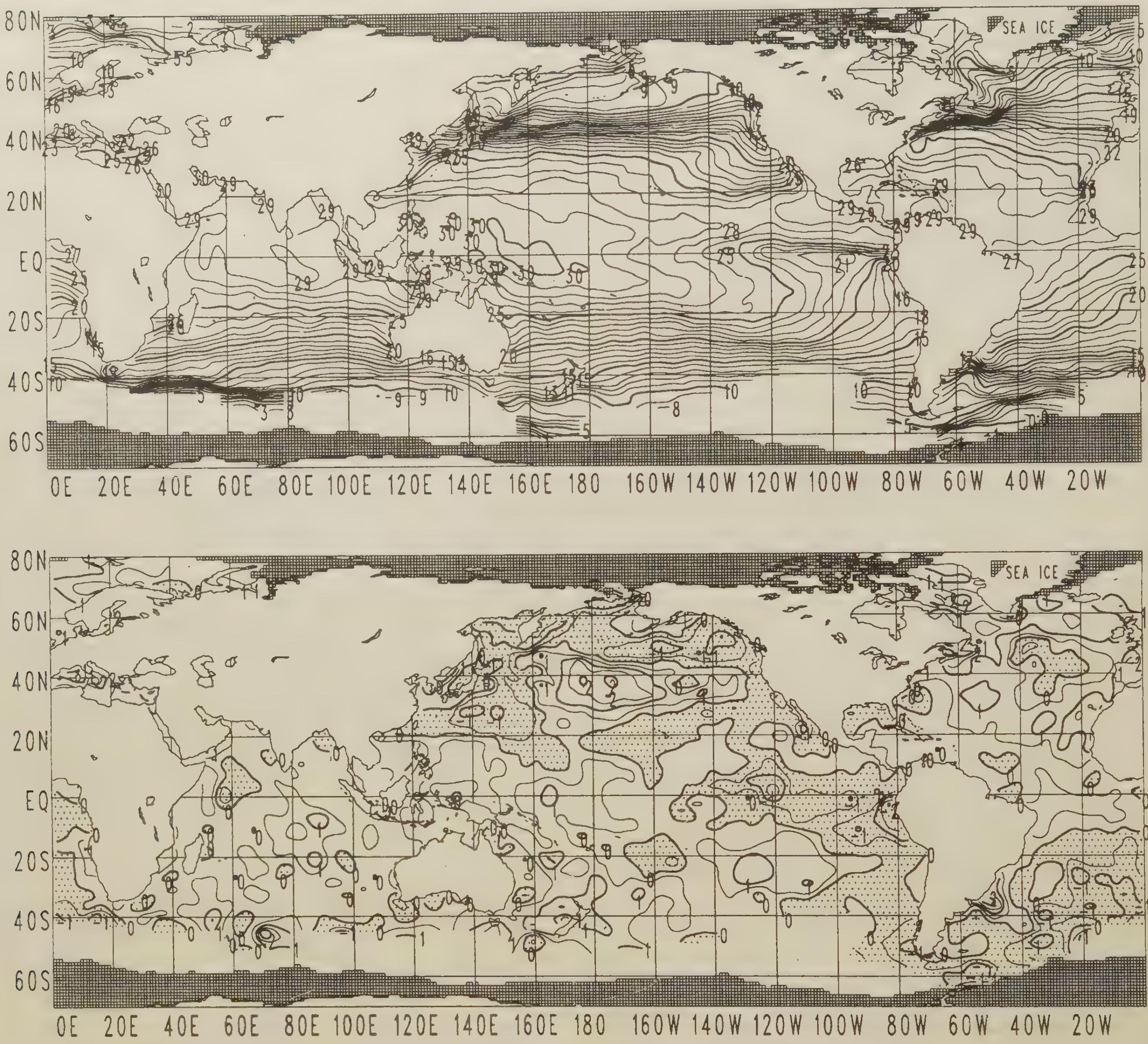
第16図　漂流型海洋気象ブイロボットの軌跡と観測要素の時系列図

Fig.16　Time series of JMA drifting buoy observation.
The upper panel shows paths of the buoys. Circles denote the position at 00h UTC everyday.
The lower panel shows time series of observation data.



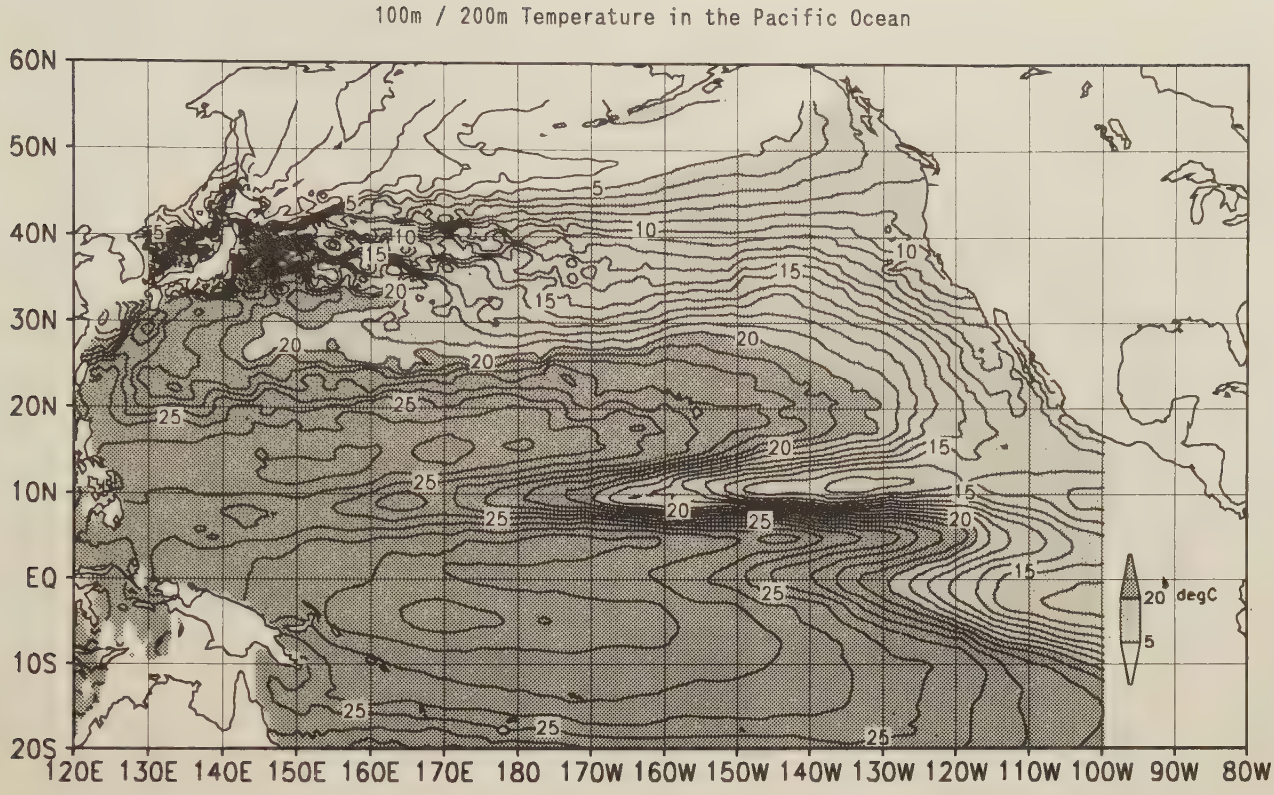
第16図 つづき
Fig.16 continue

SST & Anomalies in the Global Ocean



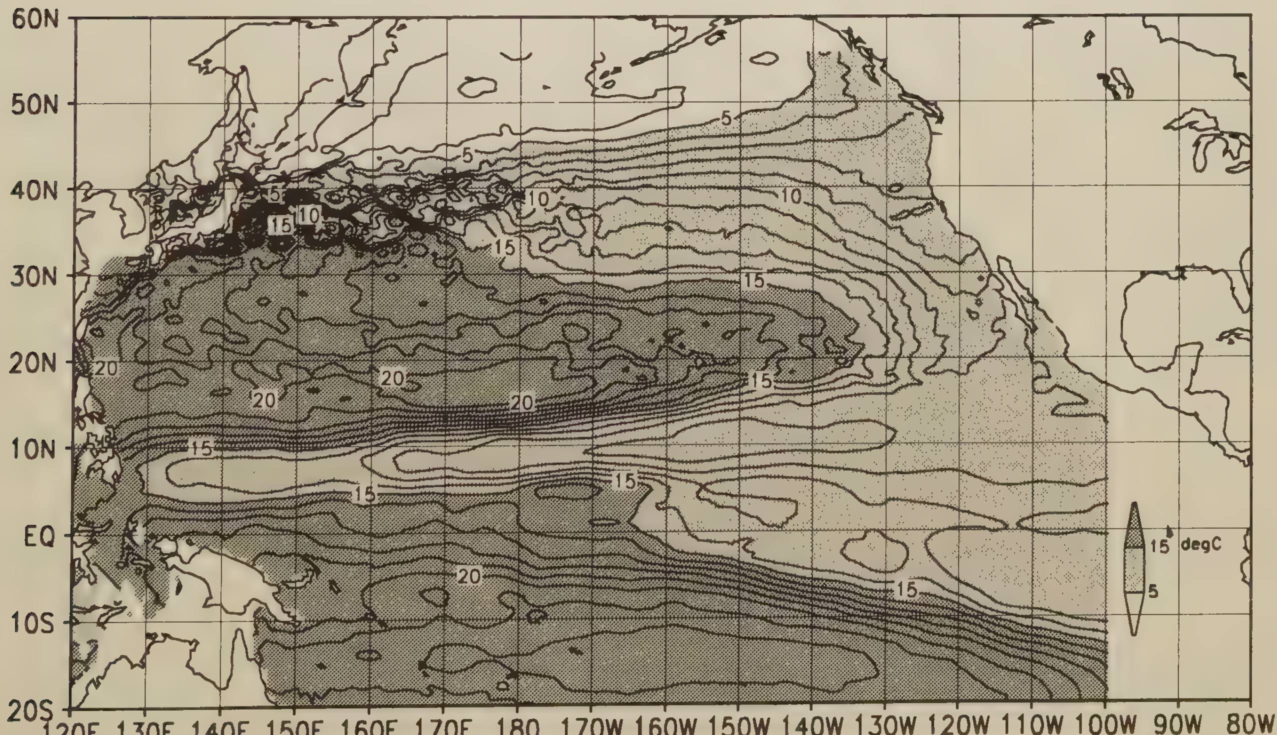
第17図　全球月平均海面水温図（上）及び偏差図（下）（2001年10月）

Fig. 17 Monthly mean SST over the global ocean (top) and anomalies (bottom) for OCT 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).



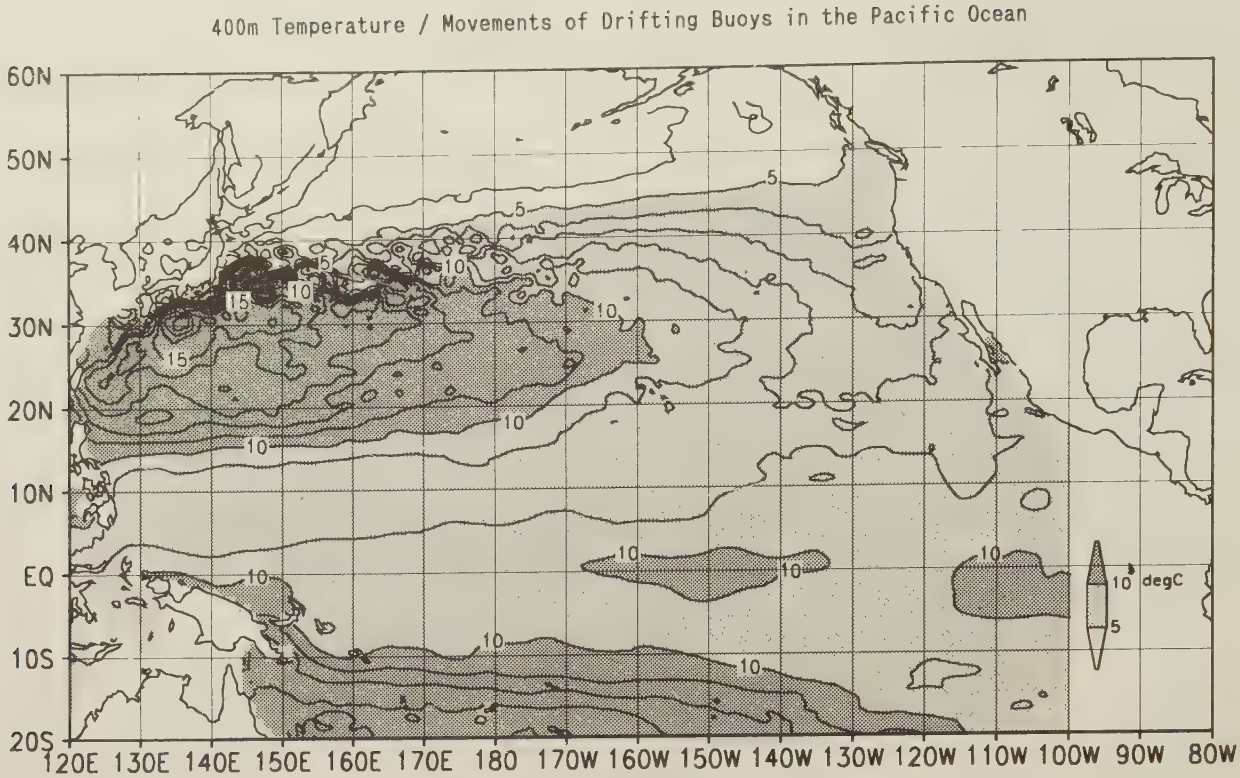
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（海洋総合解析システムによる）

Fig. 18　Monthly mean subsurface (100 m) temperature in the Pacific Ocean for October 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



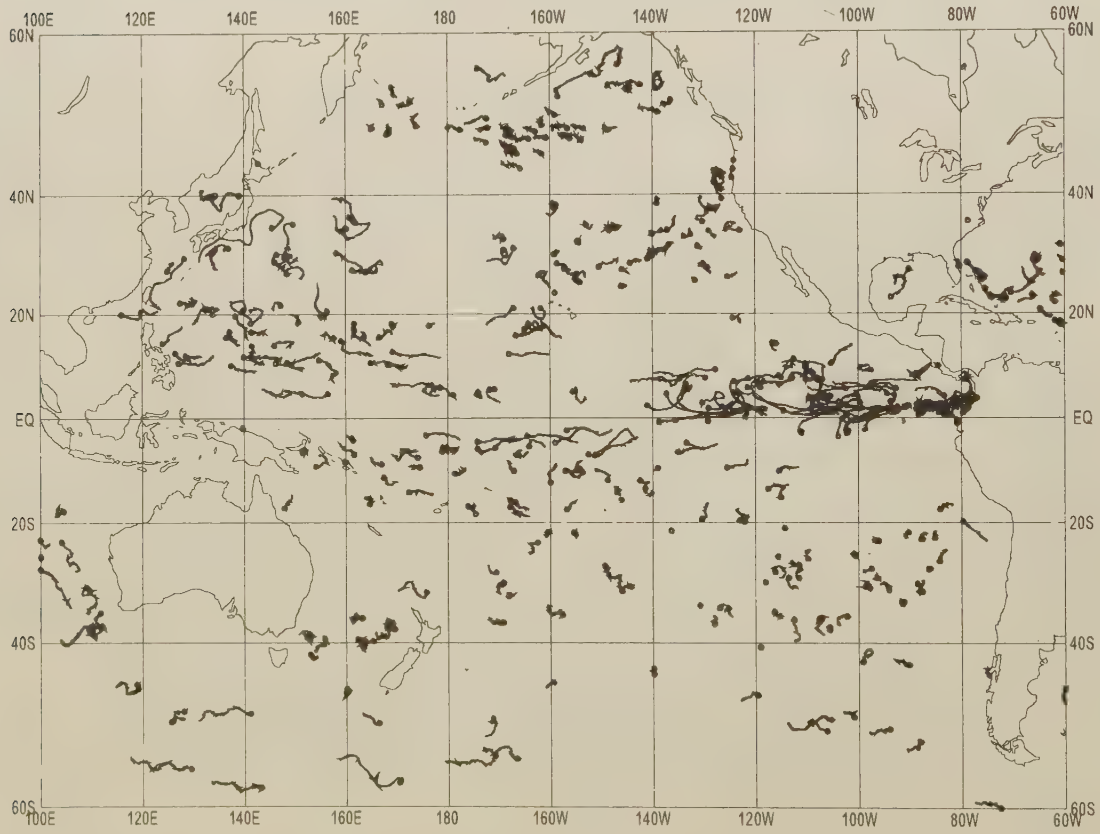
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（海洋総合解析システムによる）

Fig. 19　Monthly mean subsurface (200 m) temperature in the Pacific Ocean for October 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



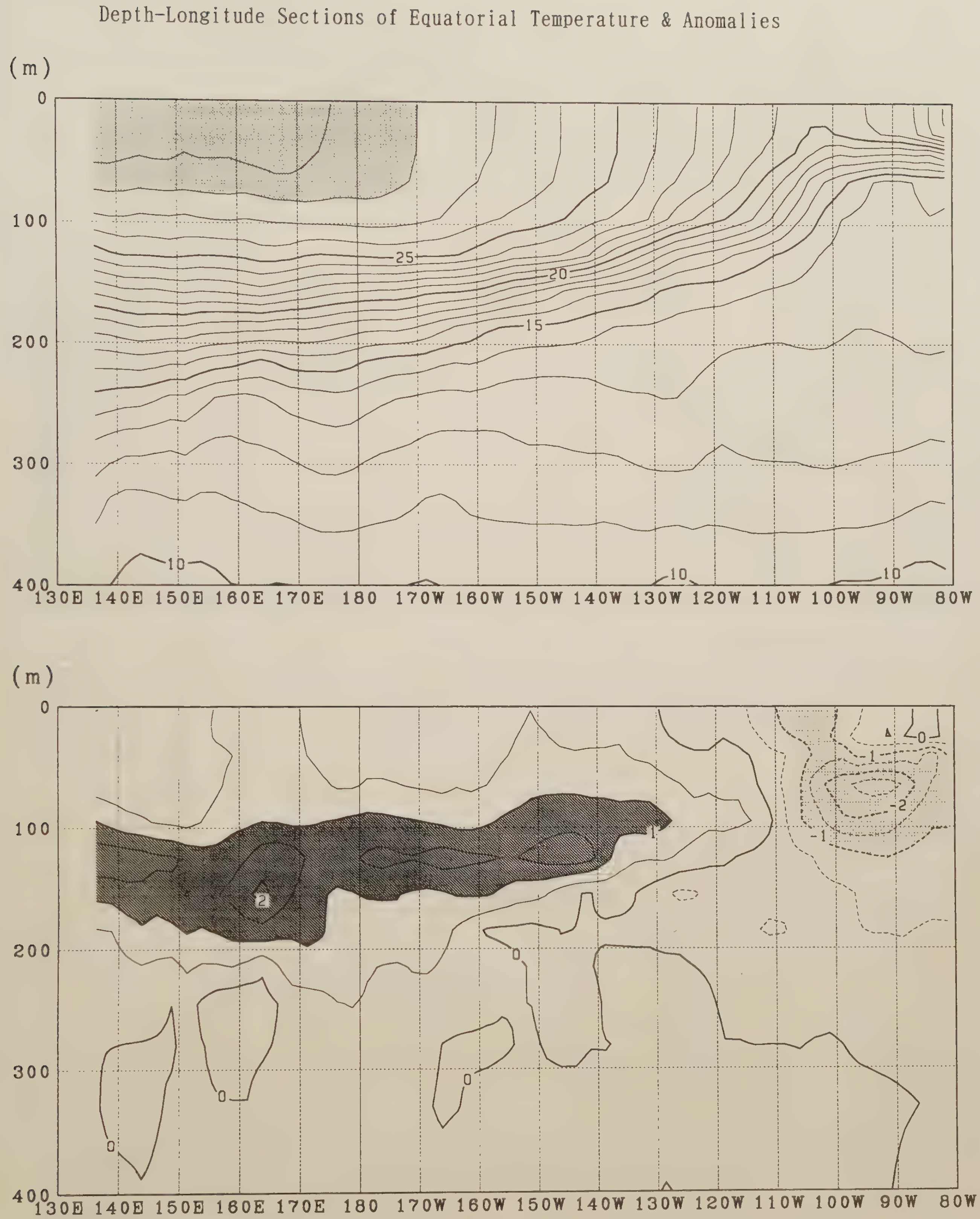
第 20 図　太平洋月平均表層水温図（深さ 400 m）　(2001 年 10 月)
（海洋総合解析システムによる）

Fig. 20　Monthly mean subsurface (400 m) temperature in the Pacific Ocean for October 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



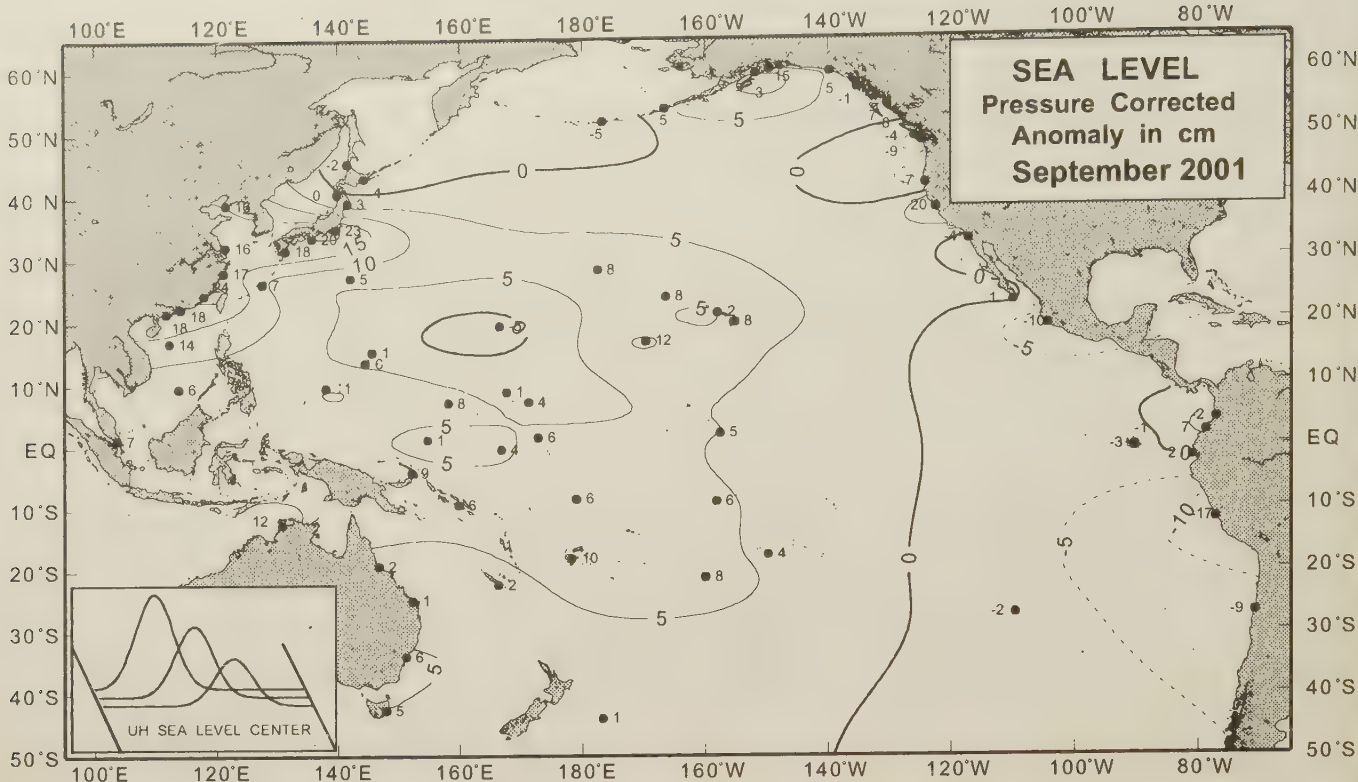
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Fig. 21　Trajectories of drifting buoys in the Pacific Ocean during October 2001. Each track is for one buoy. Small circles represent the last positions for the month.



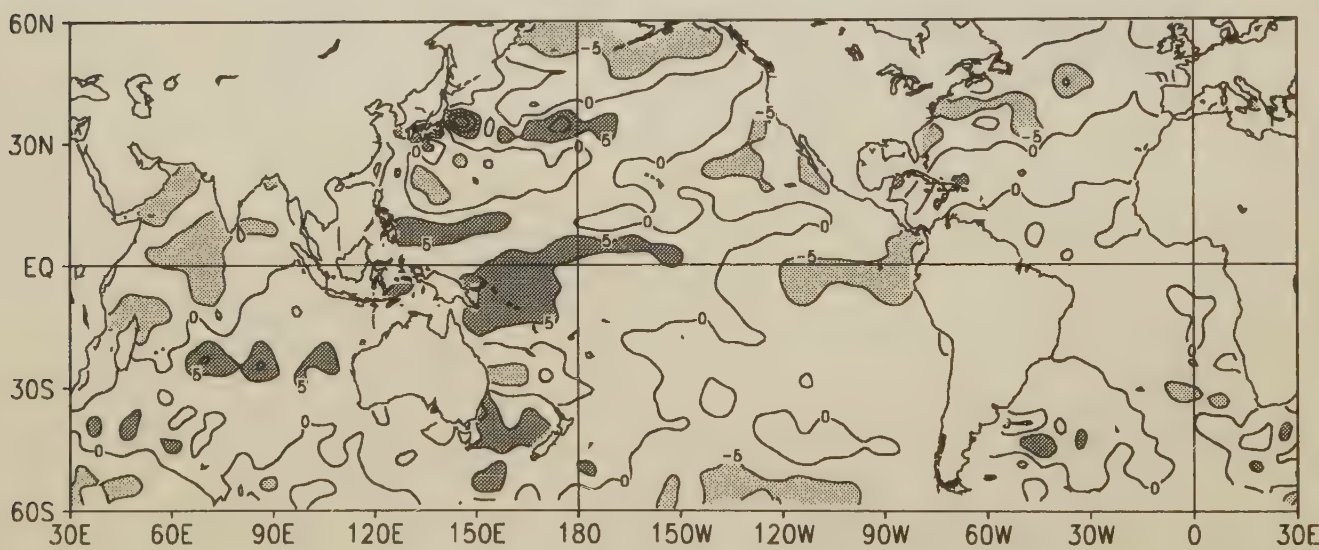
第22図　太平洋赤道に沿う表層水温（上）及び偏差（下）の深度－経度断面図（2001年10月）

Fig. 22 Depth-longitude sections of temperature (top) and anomalies (bottom) along the equator in the Pacific Ocean for OCT 2001. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (top) and 0.5°C (bottom). Values greater than 28°C in the top panel are shaded. In the bottom panel, values greater than 1°C are shaded and values less than -1°C are spotted. Anomalies are computed from 1987-2000 base period means.



第 23 図　太平洋月平均海面水位偏差図 (2001 年 9 月)

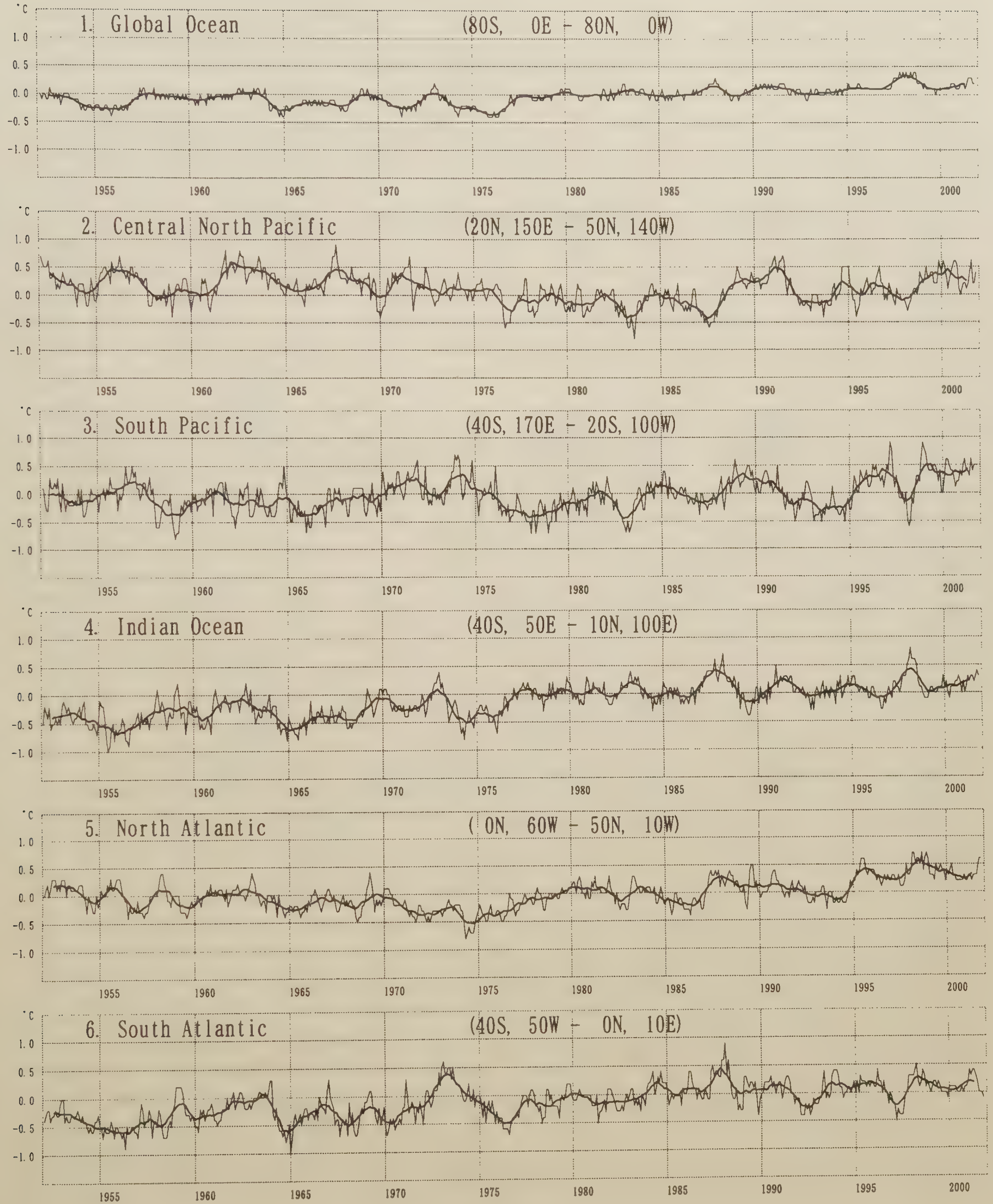
Fig. 23　Monthly sea level anomalies for September 2001 obtained from mean sea level (1975-1995) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Department of Oceanography, University of Hawaii.



第 24 図　全球月平均海面高度偏差図 (2001 年 9 月)

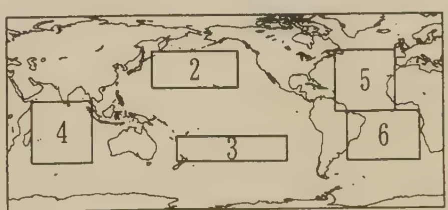
Fig. 24　Monthly sea surface height anomalies in the global ocean derived from the altimeter data of TOPEX/POSEIDON for September 2001. Contour interval is 5 cm. Positive anomalies exceeding +5 cm are shaded and negative anomalies exceeding -5 cm are spotted. Anomalies are computed from 1993-1998 base period means.

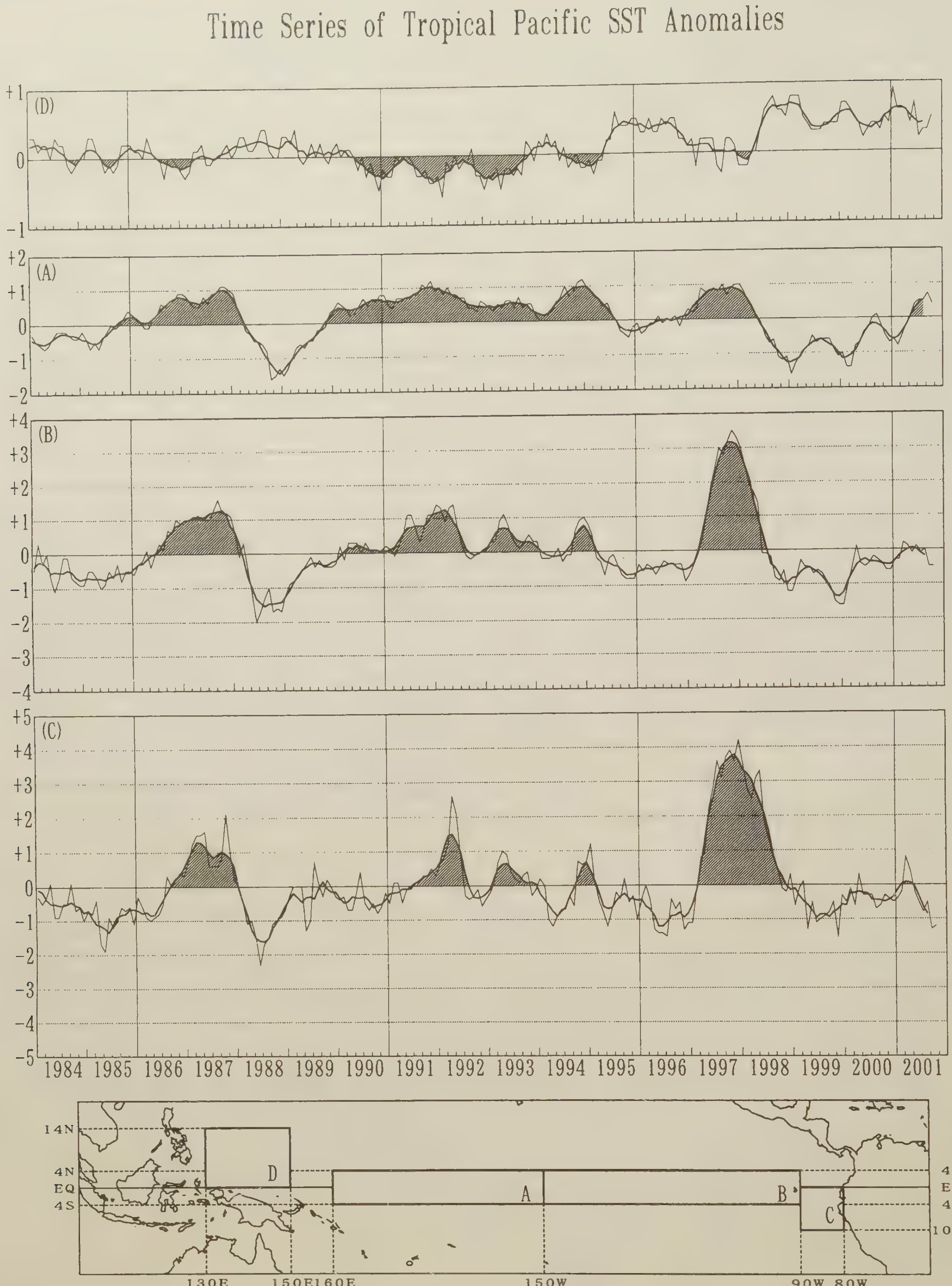
Long-term Variation of Monthly Mean SST Anomalies



第25図 海域平均海面水温偏差の長期変動

Fig. 25 Long-term variations of monthly mean sea surface temperature anomalies (°C) for the areas shown in the right panel. Anomalies are computed from the JMA climatology (1971-2000). Thin lines show the monthly mean and thick lines their 13-month running means.





第26図　太平洋熱帯域の海面水温偏差時系列図

Fig. 26 Time series of monthly mean SST anomalies (°C) in the tropical Pacific Ocean for the areas indicated at the bottom panel. Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1971-2000).

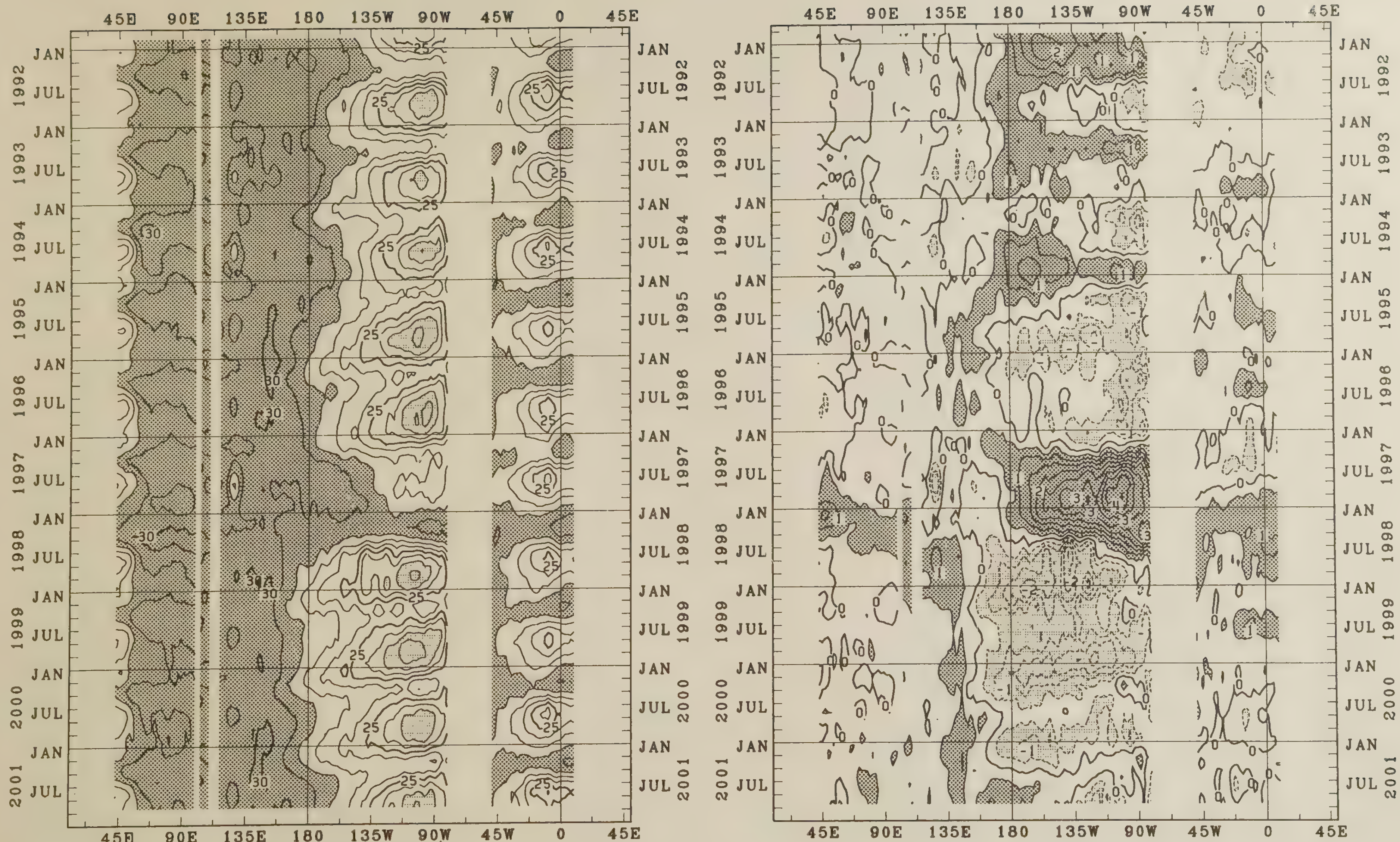
Monitoring Indices in the Tropical Pacific

MONTH YEAR	SEA SURFACE TEMPERATURE AND ANOMALY (°C) REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	SEA LEVEL PRESSURE ANOMALY (hPa) TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 99	29.3	0.8	26.4	-1.6	24.2	-1.2	23.9	-0.6	1.5	2.2	-1.2
FEB 99	29.1	0.8	26.7	-1.3	25.5	-0.8	25.9	-0.1	0.8	1.8	-0.2
MAR 99	29.3	0.8	27.0	-1.1	26.8	-0.3	26.4	0.1	0.9	0.9	-1.2
APR 99	29.3	0.5	27.3	-0.9	26.7	-0.5	24.1	-1.3	1.6	2.0	-0.5
MAY 99	29.7	0.4	27.8	-0.8	26.4	-0.5	23.8	-0.5	0.2	1.5	1.2
JUN 99	29.7	0.3	28.0	-0.5	25.5	-0.7	21.8	-1.1	0.3	1.2	0.7
JUL 99	29.6	0.3	27.8	-0.7	24.8	-0.6	20.9	-1.0	0.4	1.3	0.6
AUG 99	29.5	0.3	27.8	-0.6	24.0	-0.7	20.0	-0.9	0.4	1.8	1.2
SEP 99	29.7	0.4	27.8	-0.6	23.8	-0.9	19.7	-0.8	0.0	0.6	0.6
OCT 99	29.8	0.4	27.8	-0.6	23.6	-1.1	20.4	-0.5	1.1	1.7	-0.0
NOV 99	29.7	0.4	27.5	-0.9	23.2	-1.5	20.3	-1.5	1.2	1.6	-0.4
DEC 99	29.4	0.4	27.1	-1.1	23.4	-1.6	22.6	-0.3	1.6	2.6	-0.3
JAN 00	29.2	0.7	27.0	-1.0	23.8	-1.6	24.0	-0.5	0.5	1.7	0.6
FEB 00	29.0	0.7	26.6	-1.4	25.3	-1.0	25.9	-0.1	1.2	3.1	0.2
MAR 00	29.1	0.6	26.7	-1.4	26.6	-0.5	25.7	-0.6	1.1	2.1	-0.2
APR 00	29.3	0.5	27.4	-0.8	27.3	0.1	25.7	0.3	1.4	1.5	-0.6
MAY 00	29.7	0.4	27.9	-0.7	26.5	-0.4	24.0	-0.3	0.3	1.2	0.8
JUN 00	29.6	0.2	28.1	-0.4	25.7	-0.5	22.6	-0.3	-0.4	0.8	1.2
JUL 00	29.6	0.3	28.2	-0.3	25.0	-0.4	21.6	-0.3	-0.3	-0.1	0.5
AUG 00	29.6	0.4	28.4	0.0	24.5	-0.2	20.2	-0.7	0.7	0.7	-0.5
SEP 00	29.7	0.4	28.5	0.1	24.4	-0.3	19.9	-0.6	1.0	2.0	0.2
OCT 00	29.7	0.3	28.2	-0.2	24.3	-0.4	20.6	-0.3	1.0	0.7	-1.0
NOV 00	29.8	0.5	27.9	-0.5	24.1	-0.6	21.4	-0.4	1.9	1.6	-1.9
DEC 00	29.4	0.4	27.5	-0.7	24.4	-0.6	22.4	-0.5	0.9	-0.3	-2.1
JAN 01	29.4	0.9	27.4	-0.6	25.1	-0.3	24.1	-0.4	0.8	3.0	1.1
FEB 01	28.9	0.6	27.2	-0.8	26.0	-0.3	25.8	-0.2	1.0	-0.0	-2.7
MAR 01	29.1	0.6	27.6	-0.5	27.3	0.2	27.1	0.8	0.8	1.8	0.2
APR 01	29.4	0.6	28.0	-0.2	27.3	0.1	25.8	0.4	0.2	0.4	0.2
MAY 01	29.7	0.4	28.7	0.1	26.8	-0.1	24.1	-0.2	-0.8	0.2	1.3
JUN 01	30.1	0.7	28.9	0.4	26.3	0.1	22.4	-0.5	0.3	0.3	-0.1
JUL 01	29.5	0.2	29.0	0.5	25.3	-0.1	21.1	-0.8	-0.3	0.3	0.8
AUG 01	29.5	0.3	28.9	0.5	24.7	0.0	20.4	-0.5	-0.6	-0.4	0.5
SEP 01	29.6	0.3	29.1	0.7	24.2	-0.5	19.2	-1.3	0.2	0.3	0.0
OCT 01	29.9	0.5	28.8	0.4	24.2	-0.5	19.7	-1.2	-0.1	-0.5	-0.4

第1表　太平洋熱帯域の大気及び海洋の監視指数

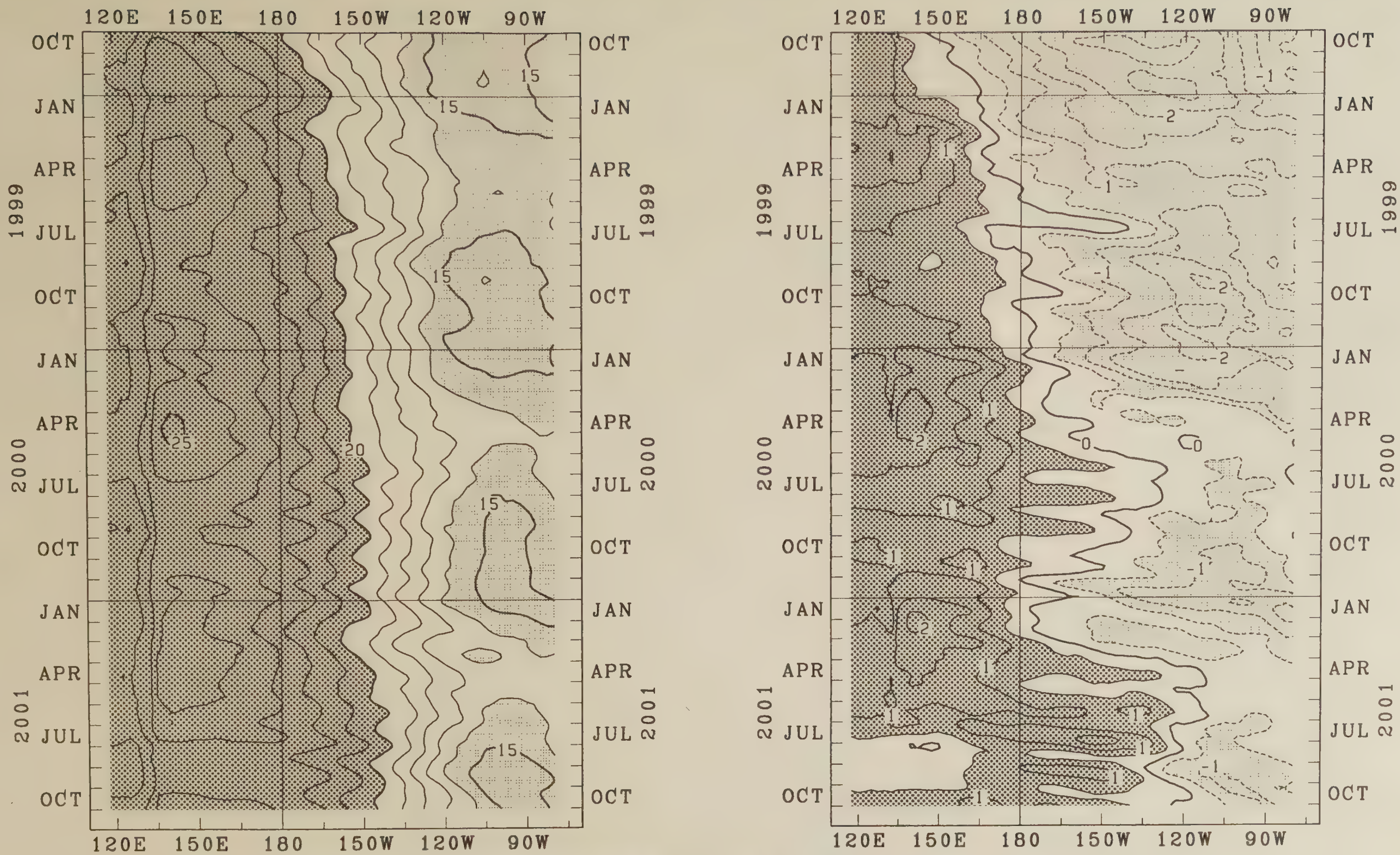
Table 1 Atmospheric and oceanic monitoring indices in the tropical Pacific Ocean

Time-Longitude Section of SST & Anomalies



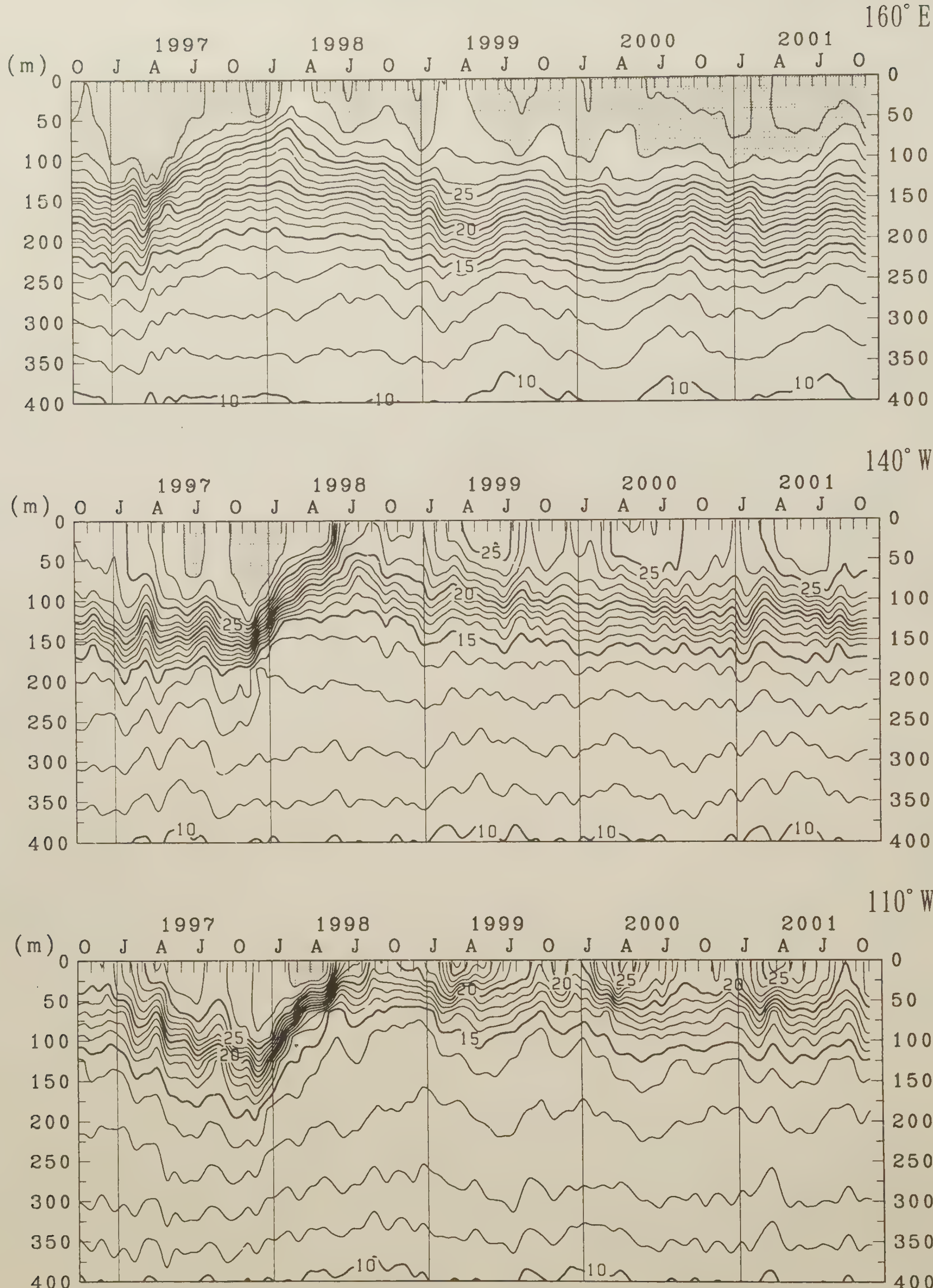
第 27 図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

Fig. 27　Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2 ˚N-2 ˚S) in the global ocean. Contour interval is 1 ˚C (left) and 0.5 ˚C (right). Values greater than 28 ˚C are shaded and values less than 23 ˚C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1971-2000 base period means.



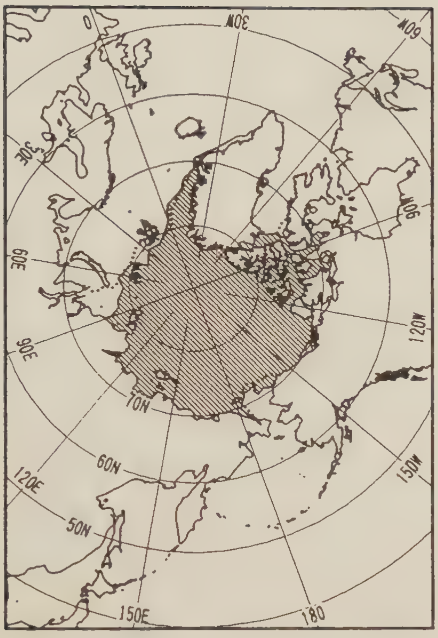
第28図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig. 28 Time-longitude sections of ocean heat content in the upper 260 m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 20°C are shaded and values less than 16°C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-2000 base period means.



第29図　太平洋赤道域の表層水温の時間－深度断面図
（上：西部、中：中部、下：東部）

Fig. 29 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA., Contour interval is 1°C. Values greater than 28°C are shaded.

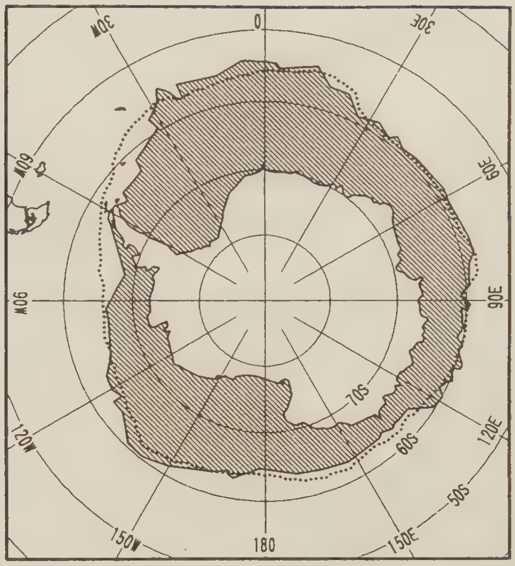


第30-1図　北極域の海氷図（2001年10月12日）

Fig.30-1 Sea ice chart in the Arctic on 12 Oct. 2001.

The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1972 through 1990.

The data source is the National Ice Center (USA).

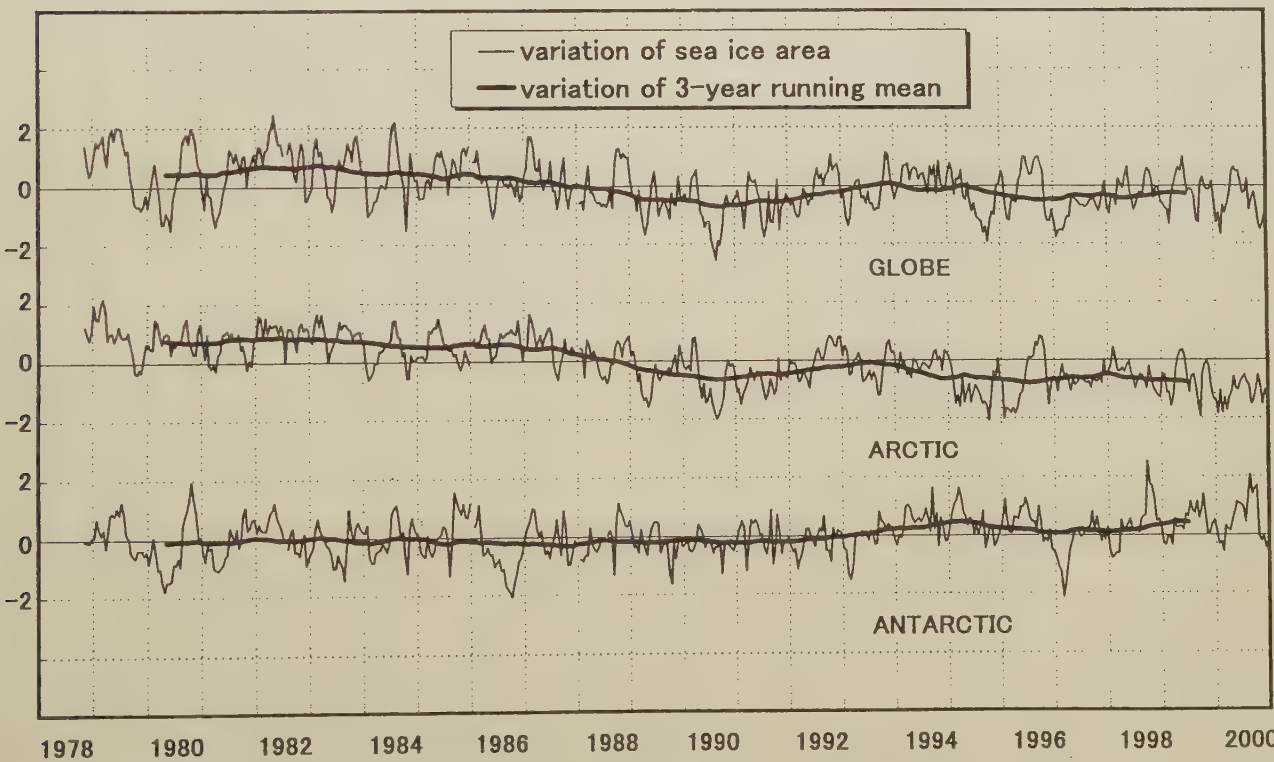


第30-2図　南極域の海氷図（2001年10月19日）

Fig.30-2 Sea ice chart in the Antarctic on 19 Oct. 2001.

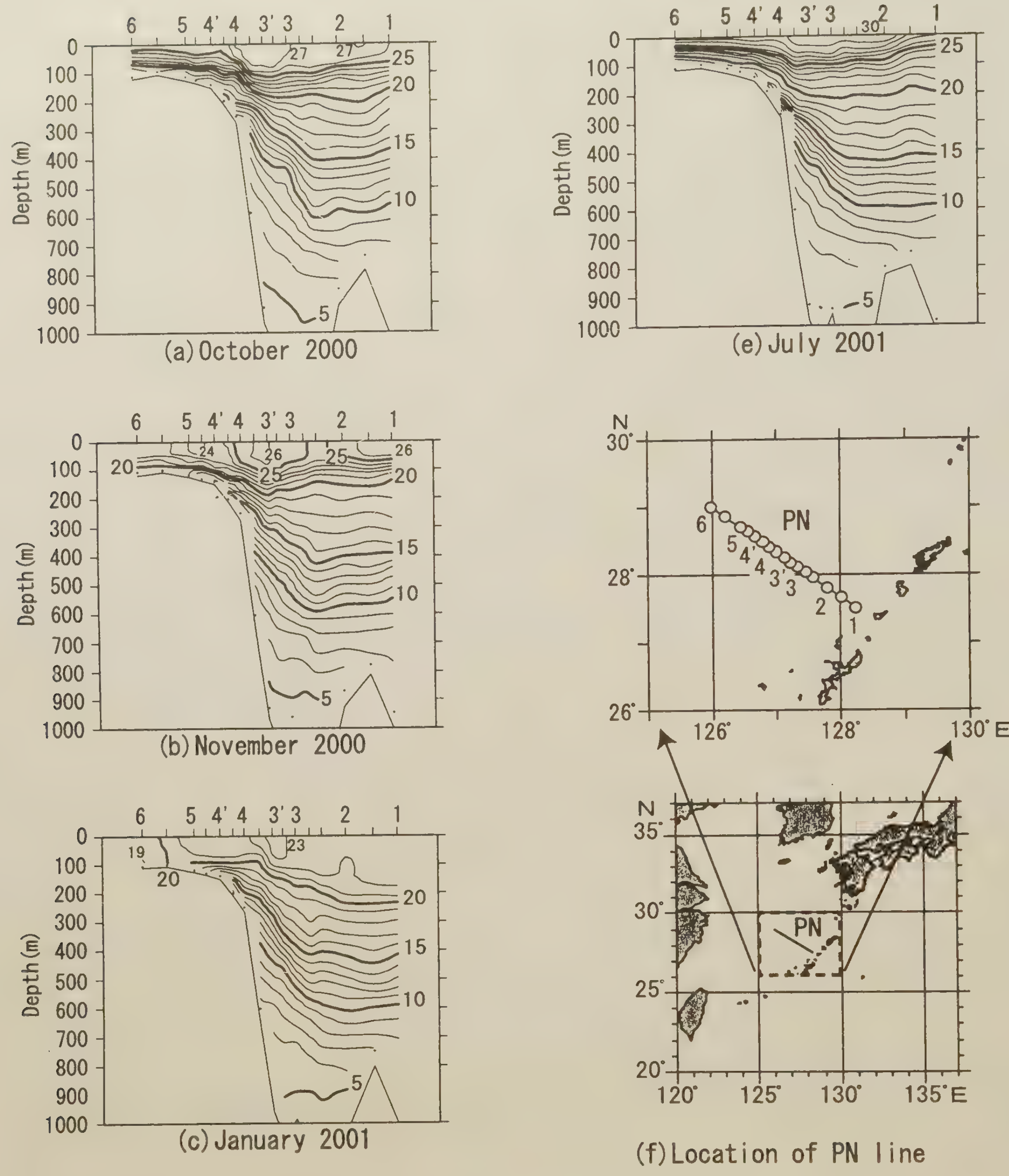
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1973 through 1990.

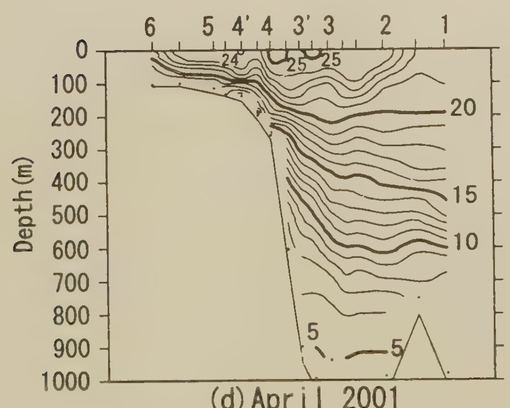
The data source is the National Ice Center (USA).



第30-3図 全球、北極及び南極における海氷域面積の偏差（平年差／標準偏差）の時系列図
資料は米国雪氷データセンター提供のSSM/Iデータによる

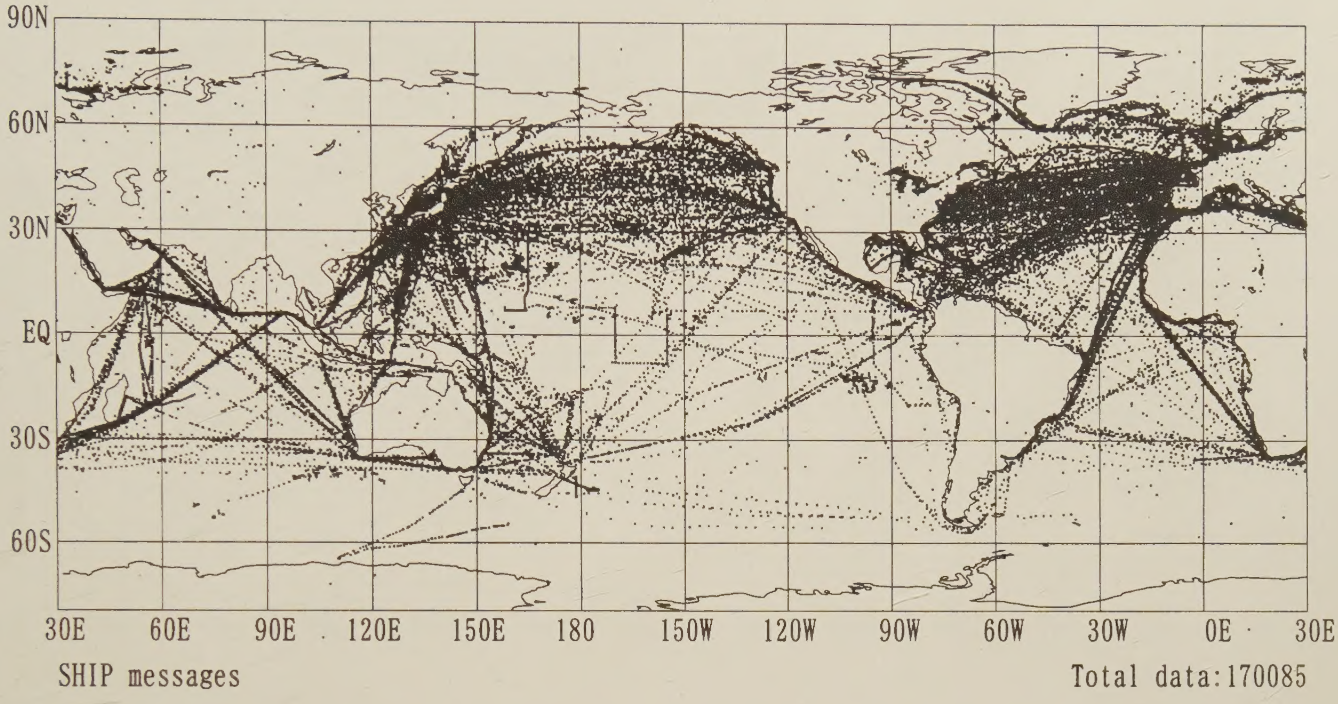
Fig.30-3 Time series of the normalized deviation (deviation from normal / standard deviation) of Global, Arctic and Antarctic sea ice extent (Based on SSM/I data by National Snow and Ice Data Center,USA).

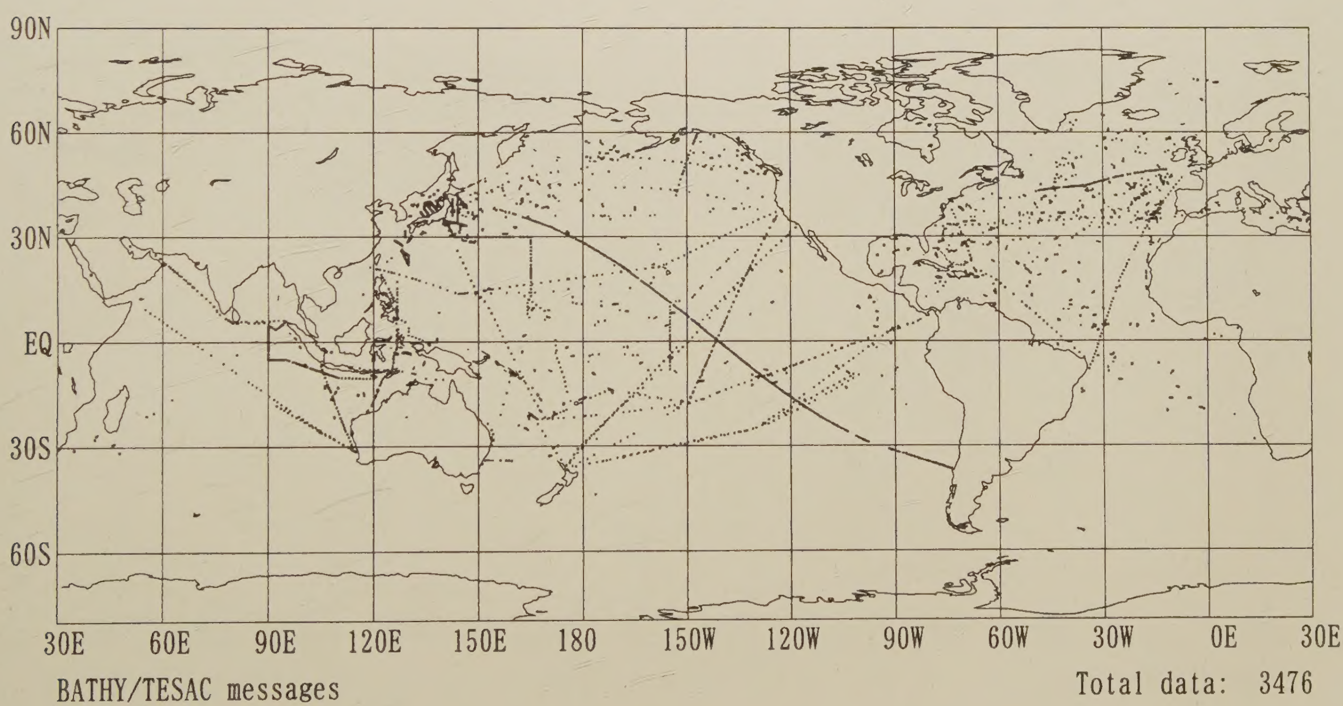




第31図　長崎海洋気象台長風丸によるＰＮ線に沿った水温鉛直断面図(℃). (a)2000年10月、(b)2000年11月、(c)2001年1月、(d)2001年4月、(e)2001年7月、(f)ＰＮ線の位置図.

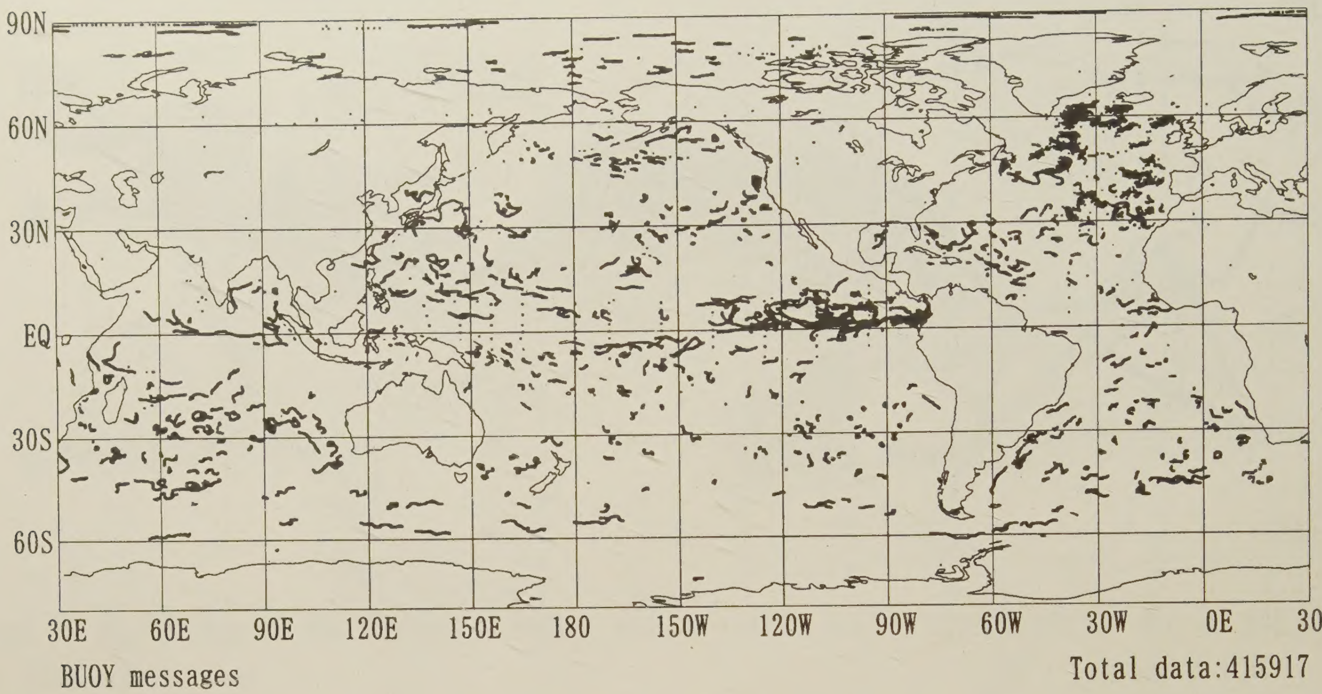
Fig. 31 Vertical sections of water temperature(℃) along PN line by R/V Chofu Maru of the Nagasaki Marine Observatory, JMA. (a) October 2000, (b) November 2000, (c) January 2001, (d) April 2001, (e) July 2001 and (f) Location of PN line.

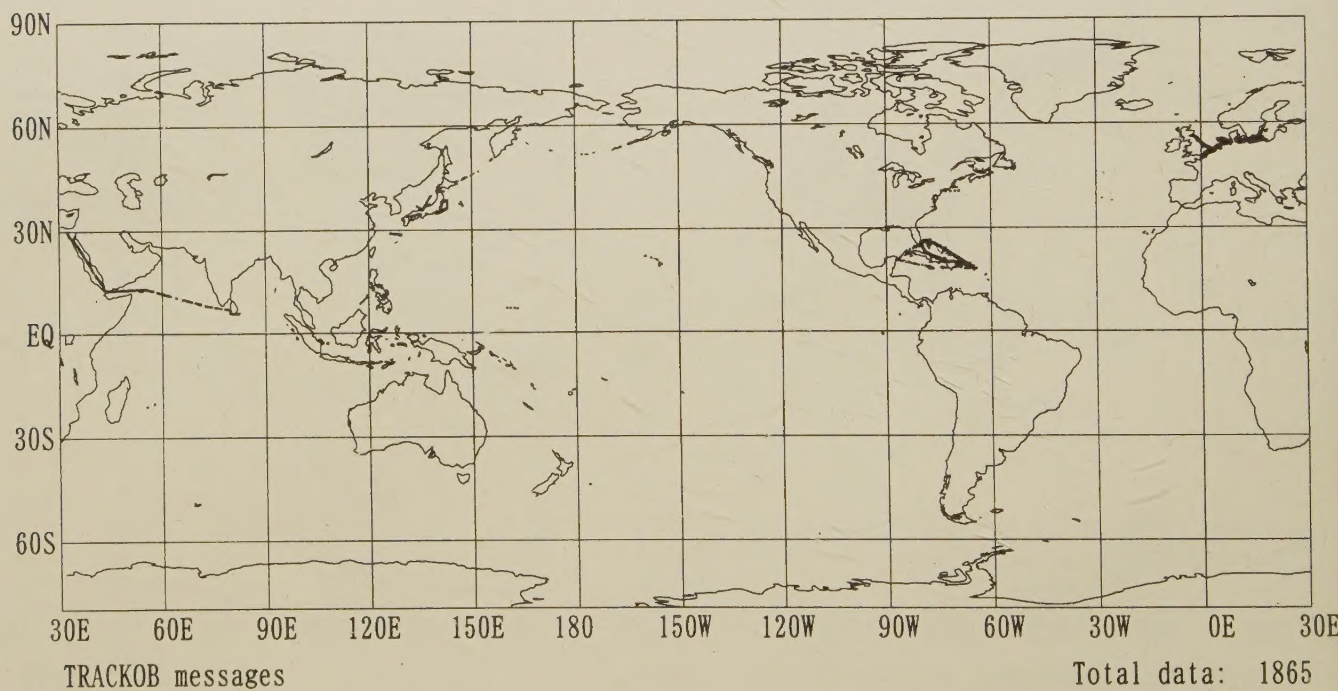




第32-1図　測点分布図(2001年10月)

Fig. 32-1 Geographical distribution of SHIP messages (SST data, top) and BATHY/TESAC messages (subsurface temperature data, bottom) for OCT 2001.





第32-2図　測点分布図(2001年10月)

Fig. 32-2 Geographical distribution of BUOY messages (buoy drift and SST data, top) and TRACKOB messages (ship drift and SST data, bottom) for OCT 2001.

気　象　庁　海　洋　月　報

Monthly Ocean Report

October 2001 (No. 106)

本月報掲載の2001年10月のプロダクトには、気象庁が観測したデータ及びGTS（全球気象通信網）を通じて入手した国際気象通報式による通報のほか、下記の機関等から提供いただいたデータを使用しています。御礼申し上げます。

防衛庁、海上保安庁

水産総合研究センター

海洋科学技術センター、（社）漁業情報サービスセンター

東北大学、東京大学

水産試験場等（北海道、青森県、岩手県、宮城県、秋田県、山形県、福島県、茨城県、千葉県、東京都、新潟県、石川県、福井県、静岡県、三重県、京都府、兵庫県、和歌山県、鳥取県、島根県、山口県、徳島県、高知県、福岡県、長崎県、宮崎県、沖縄県）

（順不同）

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